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Bee-keeper's magazine

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THE BEE KEEPERS' MAGAZINE.

Devoted to Bee Culture

JOHN ASPINWALL,
EDITOR AND PROPRIETOR,
BARRYTOWN-ON-HUDSON,
NEW YORK.

H. Gilmour, Inc. N.Y.

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THE BEE-KEEPERS' MAGAZINE

50 CENTS PER YEAR.

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BARRYTOWN-ON-HUDSON,
NEW YORK.

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BARRYTOWN, JANUARY, 1888.

EDITORIALS, &c.

INSTRUCTIONS TO CORRESPONDENTS.

Correspondents writing matter for publication will confer a favor on the editor by writing on only one side of the paper, and giving their full name and address. The latter will be given in the MAGAZINE, unless there is a request to the contrary. Kindly write matter for the MAGAZINE on a separate sheet from business communications, so that we may not have to mutilate business letters to get at the literary matter. Rejected manuscript cannot be returned unless stamps are forwarded for that purpose.

Silly Miss Unicorn.

Did you ever, since ever you ever were born
Hear about little Miss May Unicorn,
Who spent all her money
For Honey
(How funny!)
When she might have kept bees,
And obtained it from these,
And saved all the money
She spent for the honey
To send to the heathen way over the seas!
St. Nicohlas Magazine.

For the Bee-Keepers' Magazine.

Doubling Up.

There is a plan beneath the sun,
When swarms are sometimes lean,
To double two and make but one,
And sell the other queen.

If this is what you do just now,
The swarm may winter well,
But we could never see just how
To plan, or guess, or tell.

You could have even in the past,
With five and twenty cents in all,
To make your bread and butter last,
And have a piece to eat this fall.

To double up? O, yes, the price,
The MAGAZINE is now to be,
Just fifty cents, it will be nice
To get a just and worthy fee.

So please accept our fifty cents,
For next year's MAG., and let it be
From every growler on the fence
Who'd blot its page forever free.

JOHN ANDREWS.

Patten's Mills, N. Y., Nov. 20, '87.

ARE CONVENTIONS BECOMING ADVERTISING SCHEMES?

Shall we let our conventions degenerate into advertising schemes? That is a pertinent question at this time. It looks very much as if that is the direction in which they are moving. We will take for example the N. A. Convention, recently held at Chicago. This association is agitating the question of founding an Inter-National Representative Association, and yet it will permit a man like Mr. James Heddon to be placed on the programme for an address on "Bee Hives and Fixtures." We all know about Mr. Heddon and his hive. We know that his hive has been advertised in all manners and shapes. We would like to know why such a subject was assigned to him, if it were not for the chance to advertise that hive again. We will simply look at the facts and judge.

His address (?) was as follows: After quoting something that Mr. R. C. Otis said to him about hives years ago, he says the subject is so vast that

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he would not know where to begin or end, and that therefore he would resolve himself into a question box. What is the first question asked him?

"Would it not be well for you to explain the Heddon Hive and its workings?"

Now, in all conscience, good readers, has not its workings been discussed, and discussed, and discussed, in almost all our bee papers?

This is not brought forward to condemn Mr. Heddon at all, because he goes into bee-keeping to make money, and says so candidly. If he can advertise at a convention he takes the chance, looking at it as a business transaction. Whether we like his hive or not, does not alter our feelings towards his actions in this matter, because if we were in his position, and looked at bee-keeping and conventions as chances to make money, we would do as he has done. So long as you are honest in business, the more you push it the better you succeed.

All this is given as an illustration of what is seen in almost every one of our conventions. It is on the managers of these conventions that the blame really lies.

There is an exhibition room for the supply dealer at conventions, and *there* should he find his legitimate sphere. Let him come and exhibit—the more the merrier, say we, but let him confine himself, or, rather, let him be confined to the hours between sessions for the display and praise of his wares, and leave the convention sessions to the use for which they were originated, viz.: The enlightenment of the members on subjects appertaining to bee-keeping through essays read by experts on the subject under consideration, and earnest discussion of the essays by members present.

THE PROPOSED INTERNATIONAL ASSOCIATION.

As promised on page 354 of the December number of the MAGAZINE we propose to discuss a little more at length the new constitution for the North American Bee-Keepers' Association, as proposed by Mr. Newman at the late convention. In his remarks prior to reading the constitution which he proposd, he said: "To make this a representative body is not a difficult task. The constitution can be revised and amended, and when this meeting adjourns it can direct that at the next annual meeting, representatives from auxiliary societies and members of the parent society only will be allowed to vote, hold office, etc."

We do not believe that the proposed association can be formed in any such simple manner. "You can lead a horse to water but cannot make him drink."

You can say to the bee-keepers of America "We form ourselves into an International Society," but it does not follow that because the North American Bee-Keepers' Association says this, all the bee-keepers of America are going to flock to its banner, any more than they do at present.

The way to accomplished this, is to set to work and get just as many bee-keepers interested in the movement as possible. Have the matter discussed in all conventions throughout the United States. Let the committee write to the secretaries of all the conventions urging an earnest discussion of the matter, and when the time is ripe, call a convention of delegates of all the conventions of the country and there, either form the association and let the North American Association disband, or let the latter merge itself into the new body.

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No real results can be attained by sitting still till the next convention and then have a few remaks made on the subject by a body of fifty or seventy-five members, and the matter be again given to a committee.

We have no idea the committee on Revision of Constitution will sit still, because it is formed of live, competent members. Their province is not really to agitate the question, but merely the revision above referred to. However, if this committee have really the desire to promote the welfare of the bee-keepers of America they will exert themselves to the utmost to make a success of the movement so auspiciously begun.

WHAT A SMART WOMAN CAN DO.

A lady in this issue tells how she overcame the low price for honey, by making the latter into vinegar. She had 40 pounds of honey for which she was offered three cents per pound. Had she sold it as honey, she would have realized $1.20 for her crop. Instead of this she took the honey and with the addition of 86 1-2 gallons of rain water, which cost her nothing, made 90 gallons of, as she expresses it, "the best vinegar in the country." This vinegar sold at 16 cents per gallon netting her, allowing $1.25 each for the barrels, the neat sum of $11.90. There is a lesson for you, Bee-Keepers!

MODERN BEE JOURNALISM.

An observant reader of our bee journals gives his views in another column on the subject of Modern Bee Journalism. In most that he says he is entirely correct.

Our conventions and our bee journals have all been catering to the novice, because he is their best customer. This is correct policy to a great extent. What we mean is this, if you are going to run a paper with a supply business, the former is necessarily the feeder for the latter.

The bee-keepers themselves are greatly to blame too. When many a man gets so he can introduce a queen correctly and handle a swarm, and invent a hive, he has done with bee journals. They cannot teach *him* anything. Only the other day we had a visit from just such a person. Yet he said he was sure that those persons who got large crops of honey *must feed it to their bees.* We shall put our best efforts forward to meet the standard set by M. and beg our subscribers to cooperate with us in the good work.

CONVENTIONS AND ASSOCIATIONS.

As matters are at present the "convention" is the "Association" and the "Association" the "Convention." They are synonymous terms in bee culture in America.

Members leave the convention hall, when the meeting has adjourned for the last time, and the association is practically dead, till the next yearly convention. This is so all over the country, except perhaps with one or two exceptions.

A pretty state of affairs in this modern age, for an industry—presenting, as the *American Bee Journal* remarked in an editorial lately, an annual value of $15,000,000 for honey and $100,000 for wax. What is the trouble; are we all asleep?

WHAT IS THE NORTH AMERICAN BEE-KEEPERS' ASSOCIATION?

If we are not greatly mistaken Dr. Miller is entirely correct in calling this Association a sectional gathering of bee-keepers. Without doubt, we have not to-day what can be called an

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organization of bee-keepers. These associations, all of them, except, perhaps, the one in Philadelphia, are nearly all annual or semi-annual gatherings of bee-keepers. If these gatherings did not occur the so-called associations would be dead, absolutely *dead.* Shame on us that such a state of affairs exist!

NO ADVERTISING IN THE INTERNATIONAL.

What we have said about advertising at conventions leads us to take the liberty of suggesting to those who may be interested in the movement of forming a grand international association of Bee-Keepers in America, that it will be a flat failure if it is to be conducted in the manner of many of our conventions. It cannot be used as an advertising medium for supply dealers, except in the matter of exhibitions of supplies, the which it should encourage, and if the promoters of the formation of the proposed association do not make up their minds on this point, we think the quicker the matter is dropped the better.

The proposed association will have the unanimous support of the bee-keepers of America, only when it shall be plainly seen that it is conducted entirely for their interest, and that the supply man shall play second fiddle.

PUBLISHING FULL REPORTS OF CONVENTIONS.

It would seem from the letter of Mr. Smith of Sunapee, N H., an impression was abroad that we proposed to suppress convention reports, and it was our desire not to publish them in our paper. This idea is entirely erroneous. When speaking of it we said we thought the publishing of the reports in full was a harm to the conventions and so we do, as long as they are organized on the plan now in vogue, but *that* did not mean we were going to stop *publishing* the reports. Or first duty in *publishing* this magazine is to work for the best interest of its subscribers, and we would get those reports if we had to hire some one to write them for us. No, no, friend Smith, we shall publish all the good matter we can get, and feel it our duty to exert ourselves to the utmost, and furnish our subscribers with full reports of the conventions.

LEGISLATION FOR BEE-KEEPERS—ANOTHER PLAN.

It is not to be supposed for an instant, that our good friend, Dr. C. C. Miller has anything else but the very purest motives in advocating legislation for the bee-keepers. In another column he gives us some points on the matter and very forcibly shows us that *our* plan is highly defective. We see plainly that *our* theory is stabbed in a vital part and "won't hold water."

Here goes for another—When that fellow sets his acre full of hives, go into the adjoining fields, set a lot of bee traps and catch all his bees!

A FAILURE INTRODUCING QUEENS BY FLICK METHOD.

No time is more trying, for the introduction of queens, than when there is a scarcity of honey. Bees are on the look-out for robbers and idle hands are ready for mischief. Mr. Flick's suggestions regarding introducing must stand the test at just such a time to be considered better than the methods now in vogue. Mr. James H. Kelsey tells us, in another column, how he failed in his attempt to introduce an Italian queen to black bees by Mr. Flick's method. Has any one else tried Mr. Flick's plan? Mr. Kelsey's

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way of uniting is somewhat novel and we have no doubt would be well in almost every case except where the stock having the feeder was strong.

OUR editorial columns are not for sale at any price, and whatever commendations we may give articles, it will be simply because we are convinced that by their worth they deserve it. The other day we bought a Barnes Foot Power Saw such as they adver-advertise in our columns. The editor, before the fire which destroyed his house had an amateur shop in which were 3,000 tools of very finest English make, but nothing could be compared in handiness, completeness of design and workmanship for the use for which it is intended, than this same foot power saw. Of course you cannot go tearing through an inch board as if you had a ten inch saw machine, but for the thousand and one uses to which the amateur puts such a tool, it is the very best of its kind we have ever seen.

IN a letter from our friend Mr. F. E. Johnson, of Long Island, we note two points in particular — first, the average yield of comb and extracted honey was only 30 pounds per colony, though they had a good season there, and secondly, he received 25 cents per pound for his extracted honey from grocer's who retailed it at 35 cents. The lack of honey gathered by the colonies was well made up for in the price obtained for it. We congratulate him upon having so excellent a market.

DO NOT forget that the two New York conventions meet this month. The New York State, at Utica, on Jan. 17th, 18th and 19th, and the Eastern New York, at Albany, in Agricultural Hall, Jan. 24th, 25th and 26th. Interesting programs are promised for both occasions. You will certainly get your money's worth by attending either or both.

NOTICE TO CANADIAN SUBSCRIBERS.

All persons in Canada desirous of subscribing to the BEE-KEEPERS' MAGAZINE, for 1888, can do so by remitting money order for 50 cents to R. F. Holterman, Brantford, Ontario, Canada, thus saving the expense and trouble of an international post-office order, or the forwarding to us of Canadian money and stamps, which we find hard to use.

OLD customers of Aspinwall & Treadwell, who have written us about supplies, in the future will please take notice of announcement in the advertising columns of this issue.

Wants Convention Reports.

Mr. Editor :

I have hesitated very much about renewing, on acconnt of your advertising the suppression of information in regard to "reports" of the doings of "conventions." You should know that there are a thousand and one of us bee-keepers on the "outskirts" who have no other possible means of seeing the doings of the conventions, except as we see them in the bee-keepers' magazines and journals. To advocate the suppression of light and knowledge in this day is a long step backwards. If your course corresponds with this idea during this year, this is the last renewal I shall give you.

J. P. SMITH.

Sunapee, N. H.

[See our comment in editorial columns—ED.]

The first premium for best display of honey at the Alabama State Fair was awarded, jointly, to R. C. Bedford and Robert DeJernette. The latter being a negro, the *Advertiser* speaks in high terms of him both as a skilled apiarist and industrious and worthy citizen.—

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For the Bee-Keepers' Magazine.

THE HERMIT OF HOOSACK.

An Apiarian Romance.

BY GEO. A. STOCKWELL.

(Continued.)

CHAPTER XV.

All Hoosack had much to interest now-a-days. Young people in the flood of pride and joy can keep no secrets, and soon were known, from hill to valley, the particulars of the double betrothal at the Mayne farm, and for a time Hoosack gave itself up to the delightful discussion, and no business could be transacted until all the details were handed around, examined and commented upon.

The members of the Mayne family had business of importance on their hands. Evidently something was going to happen. There were consultations in little and big groups, mysterious words and acts, great cheerfulness, amounting often to hilarity and boisterous merriment. What a time! What a change! A year ago the Mayne family were practically in tears, in the land of dumps and blues, with forbodings many of evil fortune to come. Then down by the ruins of Babylon; now on Pisgah's crown, swinging their hats!

The double cottage was in the hands of "artizens," as Sam May called them, carpenters and painters, who understood the art of spending much time on little work. Furniture began to arrive, "all wrapped up," to the disappointment of inquisitive Hoosackers—disappointed not because it arrived, but because it was wrapped up. They made sport of Stanhope because he dismissed school so promptly, and hurried to the cottage at running speed.

But in his hurry and pleasant worry the interests of the apiary were not neglected, Hives and frames were going together rapidly. Allan Mayne, the younger son, who has been sadly overlooked in this story, was an enthusiast, and all summer had been an efficient helper, as shown, perhaps, by this remonstrating remark: "I wonder what John and the master would do if they did n't have me to run errands for 'em!" At Christmas Allan found, in his stockings or alongside, a boy's kit of tools. That started him afresh in the nailing business, and all time out of school was devoted to the manufacture of apiarian implements.

The workshop showed the evidence of preparation. In the warm room foundation could be worked, and a great number of one-pound boxes received the full sheets, and were packed away where they would be unmolested, and were ready, too, for the next harvest. A mountain of hives accumulated, and frames too numerous to count. The putting together of surplus boxes was the work of feminine hands, and by the same agency the foundation was attached. A merry time they made of it. It was a wonder that they accomplished anything, when so much of interest and importance was impending. But we must bid bee-keeping good-bye in this story, for its course is nearly run. It deserves this parting word: Through it the present prosperity to the Maynes and others was attained, and through it the many good, happy results had come. All had found something to give profit and pleasure the year round. Not only the Maynes, but many others in the town, had turned to bee-keeping as an industry attendant upon other industries, and more than one proposed to make it the chief industry.

CHAPTER XVI.

There was an unusual scene one evening in the Mayne farm-house. Just after night-fall a stranger left the train at Little Hoosack, and at the station above another stranger appeared. Both were wrapped in great coats, with collars up, for it was cold. Sam was waiting at Little Hoosack, and Stanhope at the other station, and the two strangers, about an hour afterwards, came together at 'Squire Mayne's. They appeared to be very well acquainted with each other and needed no introduction, and Sam May apparently had met them before.

When they threw off their great coats

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in the large sitting room and went out to supper, they showed themselves to be keen-eyed, determined men between thirty and forty years of age. After supper they retired to the sitting-room and were soon in deep consultation with Sam, John and Stanhope. When one of the strangers laid upon the table a brace of pistols, 'Squire Mayne looked serious, and Mother Mayne and the young ladies were alarmed and began to comprehend the peril of the undertaking.

Sam May wore a long coat like the hermit's, and on a table near was a pair of goggles, and a false beard. He seemed to be the master of ceremonies and gave orders to all. There was a knock at the outer door, and the Hoosack Sheriff was admitted. He was not considered of any importance, but out of courtesy was made a party to the expedition. As he warmed his hands by the fire, John, who was standing near, saw the muzzle of a rusty pistol protruding from his great coat pocket, and pulled it forth.

"What's this?" asked John.

"That! Well, sir," said the Sheriff pompously, "that has done duty for nigh forty years. Its loaded! Look out!"

"Dangerous, eh! Why, there's no lock on it."

The Sheriff took it in his hand and examined it.

"Well, well," he exclaimed. "I have taken the wrong one. Have you an extra one to lend me?"

But they offered none.

"It will be safer for him and us," said one of the strangers, aside, "if he carry the one he has. He might hurt someone."

Everything was arranged now and preparations were made for departure. There were several little side scenes and tableaux enacted before the men went forth. Admonitions and warnings were given, and the journey began, Sam and one of the strangers taking one route, Stanhope and the other stranger another, and John and the Sheriff another. It was very cold, but there was no snow on the ground, and passing through the fields, the stubble deadened the sound. It was starlight, but the moon was on duty elsewhere—a night suited to the purpose of the expedition.

One hour later the six men came together within half a mile of the hermit's house, and Sam May in the hermit's garb, led the single file of men on, up the mountain in the same path, followed by the fishing party the summer before. Now they leave the path, and noislessly creep nearer to the hut, They reach the little opening in which the hut stands, and, secreted by a shelving rock and brush, lie in wait. They are within twenty feet of the door of the house. There is a glimmer in one of the windows. The hermit is at home, or someone is within. They waited a long time until they began to whisper about the chances of success. The Sheriff in a tone above a whisper was proceeding to give his opinion of "such doings" when the muzzle of a revolver was placed on the tip of his nose, with this remark: "Shut up!"

Hist! There's a movement at the door. It opens, and out comes the hermit. He closes the door carefully, and walks away, not with a limp, but briskly, like a young man who had important business to attend to. He passed within four feet of the prostrate watchers. As soon as he was out of hearing, Sam May sprung up, and, followed by the others, ran to the door of the house and knocked. The others stood with their backs to the house, and if the door should be opened they could not be seen. It was noticed that Sam knocked three times slowly and twice quickly. Someone was coming, bolts were withdrawn, and the door opened an inch. Someone inquired, "Is that you?" "Yes," answered Sam in the falsetto key, "I forgot something." The door chain was unhitched, the door swung back and Sam and his followers, weapons in hand, rushed in.

(*To be continued.*)

I am much pleased with the MAGAZINE and want it another year.

Yours Resp't, H. J. DART.
Ovid, N. Y.

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For the Bee-Keepers' Magazine.

MOLLY HEATH'S VENTURE.

A Serial Story.

BY JULIA ALLYN.

(Continued.)

While Mollie rests from her journey we will describe Rosecroft and its surroundings. At the foot of a hill, nestled in a valley, lies the village town of Marston; boasting two main streets which crossed each other at right angles. The post office, apothecary, grocery, variety and other prominent stores were all grouped together facing a sort of square where the two roads met. The school-house and town-house were on the other side of the square and the three churches, Episcopal, Arthodox and Catholic, a little distance away. The border of the two roads, which, from over-arching trees, was called Elm avenue, was skirted on either side with villas and comfortable looking mansions of more or less pretention; most of them surrounded by extensive grounds trimly kept, and many of these grounds extending some distance in the rear and reaching to the border of a little stream which wound its way along the east side of the town. The other road, or Main street as it was called, was bordered by the more ancient buildings, residences and shops and led down to the manufactories, which were located at the lower part of the town by the river, for the thrilling little town of Marston possessed two shoe factories, a manufacturing jewelry establishment and one large woolen mill. Of course quite a number of foreigners helped to make up the population and their homes were near the manufactories at the east end of the town.

Rosecroft, with which our story commences, was at the north end of the village on Elm avenue, but a little beyond the thickly settled part, on the side of a hill and so located that from the house one had a fine view of the surrounding country. The cottage, built in the Queen Anne style, was set back some distance from the road with a porch on the west fronting the street, and bay-windows looking to the south. In front of the house were two large elms and at the south a cherry grove and beyond an orchard of young fruit trees. At the rear of the house the garden extended down to the banks of the little river which acted as water power for the mills half a mile away.

Rev. Robert Heath, Mollie's father, had, twelve years before, purchased the property, at that time consisting of about ten acres with an old farm-house attached, at a very low price, but after the large manufactories had been built and business had increased he had sold off land enough to enable him to build a modern house, retaining still a garden of about three acres, which he took pride in keeping in the highest state of cultivation, besides adding enough to his bank deposit to ensure his family a moderate income. His salary as rector of the little Episcopal church had been fair, but the needs of a growing family had made constant and increasing demands upon it, and consequently very little had been saved from it year by year. Now the husband and father was gone and the mother with her five children were living on in the pretty cottage, hoping by economy and frugality to be able to keep together under its sheltering roof. Mollie at sixteen has just graduated from a flourishing Academy in a neighboring town, and Nan and the two elder boys are pursuing their studies in the high and grammar schools in Marston. Little Ted, the youngest, "Mamma's baby," is still the pet at home.

At length the day has arrived on which the bees are expected. Bob and Tom have fixed stands in the cherry grove below the house, a little to the south and where they can be seen from the dining room windows. The stands they have made, according to Mollie's directions, perfectly level and about six inches from the ground. The space in front of them is clear for quite a distance.

Tom has been perched on the gate post for fully half an hour waiting for the daily delivery to go by. At length he spies the express coming up the road and his loud hurrah! brings out the family in full force.

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Jim Murphy, the driver, looks at the assembled group and then at the hives. For once he takes the boxes up gently and with the greatest care, even solicitude, as if they contained precious and fragile freight, places them on the stand, exclaiming: "Be jabbers and I'm well rid of thim crayters. Hivn't I bin faring by the song of 'em, they would kim out an' make me acquaintence on the road."

"Oh, Jim," said Mollie, "just wait a few minutes and I'll show you as pretty a sight as you've seen in many a day."

"Prity sight, indade, Miss Mollie, its mesilf as would be made but a sorry sight of with thim fellers a buzzing like mad about me. I'm thinkin' I'll be off double quick, an' good mornin' an' good luck to yer, but I advise yer all all to kape a safe an' respictful distince from thim hot-futted buzzers."

Mollie and the boys shout with laughter as the timorous Jim jumps into the express wagon and whipping his horse speeds away from the scene of action.

"Now to work," says Mollie, "Bob, I shall want your help. Here is a black silk gauze veil you must put on over your hat and bring well down over your shoulders and I will put mine on too. Here is a pair of buckskin gloves for you like what I have on. Now we will proceed to take off the wire netting which covers the entrances and let the bees come out and have a survey of their new home. Ted, dear, you must not stand in front of the hives for when the bees fly off they want the way all clear before them. Ah, see them coming out, the little yellow beauties! Now, Bob, I am going to open one hive and show you the queen. We must work gently and slowly for any sudden motion will alarm the bees and they would then pour forth in swarms upon us. I will take the end hive and open it carefully. This upper part contains the boxes for surplus honey. See, they have deposited honey in them already! Give me the smoker. Now we will lift the cover of the main part of the hive and I will puff in a little smoke and then I will take out the end frame, just see how thickly covered it is, and lean it up against the hive. Now I can move the other frames along. See how the little yellow heads are appearing above the edges of all of the frames, just like so many little boys peeping over a fence. I may be obliged to take out several frames to find the queen; no, here she is on the middle frame. Come mother and all of you. Wrap that mosquito netting all about you and come and look. Isn't she a beauty! Any one could at once recognize the qneen for she is nearly twice as long as a worker bee and so graceful and if pure Italian, yellow as gold. I did not see her at first, but observing a cluster of the other bees I found her in their midst. They are so attentive to her wants, feeding her and making way for her as she goes from cell to cell laying eggs. See, this is what is called the brood comb and this single comb contains so much. Here are cells filled with eggs, here are others filled with bees in all stages of growth, and here, yes, here are queen cells forming. Just look at them, they are larger and protrude out beyond the others, and are just like thimbles, in shape and size. Now we must be careful for we may expect a swarm soon."

"Hurrah for a swarm," shouted Tom.

"A swarm in May
A load of hay,
A swarm in June
A silver spoon,
A swarm in July
Not worth a fly."

"Why, Ted," exclaims Mollie, "what's the matter with you. You're running for dear life, eh? What! a bee after you? You should have kept under the netting. Don't take your hat off. If the bee gets into your hair he will certainly sting you for the hair always worries him. There, he has left you now. Don't come too near again without a veil. Now we will put back the frames and in a few days we will examine the other hives, for from the appearance of this one I think we will have a busy month taking care of swarms."

"But what a sight it is, Mollie, I never saw anything like it in my life.

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There must be many thousand bees in this one hive, I had no idea it could contain so many," said Mrs. Heath. "Yes, probably about thirty or forty thousand," answered Mollie, "and now I have shown you the inside of a hive we will go and sit on the porch awhile and I will explain something about the habits of the bees and then we must prepare the six new hives which Uncle sent, in case the bees should swarm soon." "You saw," cotinued Mollie, after they were cosily seated on the veranda; "what I called the brood comb, well, in some cells were little white specks, like little bits of ivory, those were the eggs. Near these cells were some containing little worms which were the larvæ just hatched, then others capped over where the larvæ are in a chrysalis state and then still farther on somewhere the little bees were knawing their way out. Just as soon as the little fellow is fairly out and has had a sip of honey and smoothed out his wings and legs he becomes first a nurse or feeder of other little bees younger than himself, which duties he varies by going out occasionally on the alighting board and frolicing in the sun. Then by and by he assists in fanning, that is ventilating, the hive, or sweeping out, until later on he is sent afield to gather pollen, propolis and honey."

"Well, they have to work hard enough," said Bob.

"How long do they live?" asked Nan.

"In the busy months, July and August, sometimes only four or five weeks," said Mollie.

"How can they know so well what to do in so short a time? It seems quite wonderful," said Tom.

"You will find many things very wonderful and surprising about these little creatures," said Mollie. "For instance, when I tell you that the queen sometimes lays two thousand eggs in a day, I know you will be astonished. However, it has been found out by experiment that it is a fact."

"Do her subjects treat her with due respect?" asked Bob.

"Yes indeed," answered Mollie. "When she moves from cell to cell they make way for her and when she goes across the comb they fall back and let her pass and they never tire of feeding her."

"What a numerous family she has," said Tom. "It's worse than the 'old woman in the shoe.' What were those big fellows doing flying before the hive?"

"Those were drones frisking in the sunshine. They are the only ones who spend their time in play and idleness. The other bees feed them and care for them in the early part of the season, but later on as the cold weather approaches they fall upon the lazy fellows and drive them forth to die."

"Do the bees visit each other's hive?" asked Nan.

"No, only the drones can make calls on their neighbors. A sentinel at the door of each hive prevents any stranger working-bee from entering," said Mollie.

"Do all the bees sting?" asks Ted.

"No, the drones have no sting, and the other bees will not use their's generally unless you get in their way or among them. That is the only means they have of defending themselves. They can only sting once and that is their last act of vengance for they die soon after," answered Mollie.

"What will ease the pain from a sting soonest?" inquired Nan.

"A little common cooking soda dissolved in water or amonia and water or if these be not handy a little mud paste put on the wounded spot will sometimes ease the pain at once and prevents swelling."

"How do you know that, Mollie. all, of the questions are seemingly prompted by mere idle curiosity, and are of no practical use to any one. Did you ever get badly stung?" asked Ted.

"Yes, a number of times, when I first began to examine the hives and one time when I had forgotten to put on my gloves, I was stung on the hands and they were so swollen that I had to wear number seven gloves and cousin Jim said 'I would take the palm on hands,' but after awhile the stings did

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not seem to poison me at all and now I know how to handle the frames and have more confidence, I do not expect to get stung often, although I shall continue to wear gloves and a veil for awhile longer at least but dear me there's the bell, can it be dinner time so soon, we must leave the rest of our questions for another day.

For the Bee-Keepers' Magazine.

Controlling Increase—The Queenless System.

G. W. DEMAREE.

During the great swarming year of 1883 I discovered that bees would store honey with great rapidity in the absence of a queen if they were properly managed. That season I had so many colonies that persisted in wasting their time under the swarm craze while the honey was flowing without stent, that I determined to utilize their working force or sacrifice them in experimentation. Those experiments resulted in my queenless system which I have heretofore described in some of the bee periodicals. The plan is as follows: A hive is prepared by placing about four empty combs in its center and filling out the spaces at the sides with division boards placed one half inch apart so as to give as many upward passageways as would be in the hive if it was full of frames. When the time comes for using the hive a piece of comb about two inches square containing just hatched larvae is fitted in a corresponding hole in one of the empty combs. Any colony that has taken on the swarming fever is a proper subject to operate on. The old hive is moved off of its stand and set just back of it, with the entrance reversed. The prepared hive is now set on the old stand and the surplus cases with honey and bees are removed from the old hive to the prepared hive. The queen is now locked up and the frame on which she is found is set in a comb box to make sure of her whereabouts. Nearly all the bees are now shaken from the combs in front of the prepared hive, which they enter readily by means of a standing board leading to the entrance. The prepared hive is now heavily stocked with bees that are queenless. All queen cells are destroyed on the combs in the old hive if cells have been started, and the comb containing the qeeen is restored to its place. The old colony is now left to hatch out the sealed brood, and rear brood to keep up the queenless colony. The bees in the prepared hive show a little confusion at the start on missing the combs of brood and the queen, but being on the old stand and having the surplus cases present they start queen cells, and having no brood to feed and nurse, they build combs in the surplus cases and gather honey with the greatest rapidity. on the tenth day after the queenless colony was formed, the queen cells are removed and substituted with a piece of comb containing just hatched larvae. Now another supply of bees are shaken from the combs, taken from the old colony in front of the queenless hive, which recruits their failing strength and the work of storing surplus goes rapidly on. At the end of ten days more the queen cells are again removed and the old colony is united with the queenless one and the honey harvest is finished up by the united colony and all danger of swarming is past for the season. If a swarm gets out before the operation is commenced the queen is returned to the old colony after destroying the queen cells. The swarm is hived in the prepared hive and the management is precisely the same as above described. Such was my queenless system. After I learned to use perferated zinc queen excluders, I found it less labor and the results equally good, to hive the swarms with the queens into hives prepared as above, confining the queen to the contracted brood chamber by means of the zinc excluders. The queen cells are destroyed in the old hive and the bees in the old hive are united with the swarm as soon as the danger of swarming is over. In either case, toward the close of the honey harvest, the contracted brood nest is enlarged to full size by putting the combs from the old hive in the place of the division broods, so as to put the

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colony in normal condition for fall and winter.

All such manipulations require labor and attention, but without this we can never accomplish our purposes. If there is anything more vexatious to the wide-awake apiarist than to see his best colonies fritter away the best of the honey harvest under the swarm craze, I could not imagine what it could be. If we want increase we can get it by taking just one prime swarm from each colony that chooses to cast a swarm and prevent after swarms by the depletion plan of moving the parent colony to a new location in the apiary. But if we don't want increase we must use radical means as above described.

Christiansburg, Ky.

For the Bee-Keepers' Magazine.

Reply to Comments on Legislation.

DR. C. C. MILLER.

Like nearly all others, Mr. William Hall (B. K. M., p. 326) and yourself (B. K. M, p. 323) get somewhat astray in attempting to define my position as to legislation. Good friends, without taking up much room, just allow me to say that I, no more than you, desire anything that shall be unfair to the poorest man in the land, whether he may have one colony or a thousand, nor that shall hinder the man who wants to keep a single colony of bees for the mere pleasure of it, any more than he is hindered from farming a single rod of land for the mere pleasure of it. The fact is that whilst I have felt the need of something, without having very definite ideas as to details, all sorts of definite and specific plans have been attributed to me, of some of which I never dreamed.

Now, I do n't want anything that shall not be entirely fair and for the best good of all. Is n't that fair? I want bee-keeping to have the same chance that farming has. Is n't that fair? I have no cut-and-dried plan by which the thing might be accomplished in all its details. The time has n't come for that. What good is there in it, so long as the mass of bee-keepers insist that there is no need for anything to be done; that all is well just as it is? But the world does move slowly, and I welcome to the ranks of those who have taken a step in advance, Brother Hall and yourself, Mr. Editor. For, unlike others, you see the need of *something* to be done, and are casting about for the best method of accomplishing it. Now, I am not particularly anxious that there shall be any legislation whatever, *if* some plan can be devised whereby the bee-keeper can have the same security, whether with one hive or a hundred, as the farmer now possesses. Mr. Hall has made a step in the right direction by suggesting *a* plan. His plan, I think, is meant to be fair and equitable. I wish he had followed it out a little more in detail, so we could have seen it in full working order. I suspect no plan can be adopted without accompanying difficulties, and it is only by looking them fully in the face and freely talking over everything that we may arrive at what is best. I will mention just one difficulty that presents itself to my mind in Mr. Hall's plan. Suppose he attempts to start a joint stock company in his locality, and all the land-owners within a certain radius join the company, except one man who owns an acre of land right in the center of the locality, and he stands out and allows an apiary to be planted on his acre sufficient to harvest all the nectar. Of what value would the stock be, and what could be done?

Precisely the same objection holds against the plan you suggest, Mr. Editor. One stubborn man could balk the whole proceedings. Suppose, however, that you succeeded in satisfactorily buying up all the territory for a term of years, and within six months the Sheriff sells out an acre of ground to a man who is not in the compact. He is sharp enough to see that for bee-keeping purposes his one acre is just exactly as valuable as all the territory you control. What can be done in that case? But I'm glad others are beginning to study what can be done.

With two editors urging the *representative* organization of bee-keepers, I have strong hopes that something use-

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ful may be accomplished. At the risk of being accused of treason, I will say that the North American Bee-Keepers' Society, as now constituted, is little more than a sectional gathering of bee-keepers, occurring annually in different parts of the country. If anyone doubts this, let him look over the list of members of any annual meeting and see what proportion of them have come from a distance of 500 miles. But don't be discouraged if, for a time, the mass are disinclined to move and declare the thing neither "desirable nor feasible."

Marengo, Ill.

For the Bee-Keepers' Magazine.

Modern Bee Journalism.

Editor Bee-Keepers' Magazine :

That the bee journals of this country are not all they might be is plainly evident to anyone who has the opportunity of reading the various papers and magazines now published. It is not the intention of this article to attack any particular periodical or any editor, but simply to draw attention to some of the general faults. Too much is heard from the novice and not enough from the more experienced members of the fraternity, be they amateurs or specialists. This may be from the inability of the publishers to pay a sufficient sum to secure the services of the experts, or it may be due to their consciously or unconsciously trying to make the paper take the place of a text book, rather than supplement it.

The "Question" departments, from which so much was expected, when they were first started, seem to be gradually decaying. The majority, but not

There are but two bee papers published this side of the water that regularly give their readers able, dignified editorials. What care the public about the petty personal jealousies and troubles of the editors, which so many of them apparently take pleasure in publishing. The readers pay for the best thoughts of the editors on the important matters of the day, and expect to get them.

Is it to be wondered at that it is difficult for the papers to keep up their lists of subscribers, even at the low price at which they are all offered? If we could have a dignified, ably edited paper, containing the best thoughts of our best apicultural writers, it would easily command twice the price charged for any of the bee papers now published, and be sure of a large and steady list of readers. M.

No Success Introducing by the Flick Method.

Editor Bee-Keepers' Magazine :

When I read of the "natural" plan of introducing a queen, it impressed me as it did your correspondent, J. V. Ashard, and I tried it. I had a handsome yellow Italian queen that I had purchased from Mr. Vaughn in a nucleus. I wished to use her in a black stock next season, instead of the native queen, and to unite the bees in the nucleus with still another stock. I knew that the latter part of October was late, but one warm day I tried the new, or, as you say, "not new," "natural" plan of introducing. I took the six combs with bees out of my chaff eclective hive, put down an old door, and shook off the bees from their frames, *as directed*, then placed combs back in the hive. The bees were remarkably good-natured to me, considering the season, and soon started for entrance to hive. Having removed the black queen as I lifted the frames out, I secured my Italian queen and dropped her among the bees that were hurrying toward the entrance, and were farthest from same. She no sooner dropped among them than they pitched upon her, and in thirty seconds she was so much out of condition that she did not look like the same queen.

I concluded to try the cage next; I pulled her out of the mass, caged her on comb, and put her in hive, set in the other three frames and closed up the hive. In my hurry I forgot her until she had been caged four days. I thought she would be of "same scent" by that time, so took comb out carefully and away from the hive. I then

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removed the cage, and the queen remained in it. She was not active, as, perhaps, you can imagine, but crawled out slowly on to the comb, and the black workers pitched in once more. I again rescued her and held her on my hand. She showed signs of having been stung, and certainly had been harshly dealt with. I next put back my comb and covered the frames up. I then took some honey and put her into it, and after covering her all over, I turned the quilt away and dropped her in, leaving her to her fate. Two days later I lifted out one of the frames and found her moving about and apparently all right. All were quiet and good-natured. I expect good report from this stock next season.

Now the situation was this: I had two stocks of Italian and only one of blacks, and no doubt those yellow robbers had kept the blacks constantly on guard, as honey was not plenty this past fall. The peculiar odor or scent did not act as a charm, neither at sight nor at end of four days. The Italian queen was yellow and acted strangely, either of which was enough to rouse the defensive instinct. That spoonful of honey was a powerful persuader, however, and they accepted her with it. The "natural" way may work every other time in a hundred, and I sincerely hope that it may.

I next put some syrup in one of your automatic feeders and honey in my stock, with which I wished to unite the bees in nucleus, and shook the bees from their frames in front of entrance. They hurried in as though they belonged there, and the proprietors were too full of business to notice them. Neither did they drag them out later on.

The honey crop was not even fair at this point for 1887, but two stocks became thin, and gave me about ninety pounds extracted. I have never known the year that a few stocks did not pay me in honey, besides affording me a great deal of pleasure and some little pain. Yours truly,

JAMES H. KELSEY.

Middletown, Conn. Nov. 25, 1887.

[We believe you look at bee-keeping in the right spirit, and hope you will succeed. In our editorial columns you will see what we say about the introduction of queens.—ED.]

THE SEASON ON LONG ISLAND.

Facts from the Pen of a Successful Poultry Man as Well as Bee-Keeper.

Editor Bee-Keepers' Magazine:

Your November number comes along full of fresh and interesting matter, and fully maintains the excellent character of your publication. There is a noticeable lack of advertisement, which is explained by the notice of the dissolution of the partnership. We mournfully reflet that A. & T. goods will no longer be upon the market. May you find a worthy successor in the manufacturing line. Many of your correspondents seem to have experienced a poor honey season. While some have had comparatively very small yields, others have had none at all. That is not the case in this locality, for the season has been long, and well sustained by frequent rains, which has given us an almost continuous flow of honey. The crop from fruit blossoms was light, this being an off year with fruit for us. White clover yielded pretty well, but the large yield came from fall flowers, the varieties of golden-rod contributing the lion's share. Started this season with the idea of producing the greatest amount of honey that could be got from our fifteen colonies, leaving out increase, and in all ways trying to prevent it. Kept all hives strong by cutting out all drone and queen cells, thus checking their efforts to increase by swarming, and also added surplus boxes for comb honey to three strongest colonies. Extracted several times, with following results:

	LBS.
First extraction, June 13	31
Second extraction, June 20	57
Third extraction, July 14, 15, 16	82½
Fourth extraction, October 6, 7, 8	228½
	399
Comb honey	50
Total from 15 colonies	449

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In each colony three frames, well filled with honey, were left for winter stores, and in addition each colony was fed by inside feeder, with five pounds of California houey, before they were prepared for winter, which was in November. For this locality, and from experience of two previous years, we consider the above quite a good showing, and feel satisfied with the season just past. Our extracted honey is put very neatly in a glass pail, which is placed in a paper box, having a tape handle. We get twenty-five cents readily for pound packages, from grocers, and they retail at thirty-five cents. Enclosed find fifty cents for subscription to MAGAZINE, for 1888. We gladly pay it, and consider that it is still cheap at that price. With best wishes for its continued success,

Yours respectfully,

F. E. JOHNSON.

Blithwood Apiary, Parkville, L. I.

For the Bee-Keepers' Magazine.

Notes by the Way.

G. G. GROFF.

Honey was so scarce in parts of Central Pennsylvania the present summer that boys say the bumble-bees' nests were not worth whipping. The writer saw these bees repeatedly about his apiary, and some were bold enough to enter the hives, doubtless impelled to do so in search of food. This was especially true of the queen bumble-bees.

In a recent number of the New York *Independent*, October 13th, is a very interesting article on "Honey Hunting in the West." The writer has evidently never been there. He tells how bees are now kept in straw hive, how they are fed in winter, and how "wild" bees may be tamed and made useful, as tame bees. It is all very wonderful to the modern bee-keeper.

The writer, recently, carelessly suffocated a colony in moving the same, not having left sufficient ventilation. When the wire gauze was torn off the entrance, the bees near it rushed forth *in exactly the same manner as terror-stricken men would have done.* Indeed, it was a startling exhibition. Not one attempted to fly, but all rushed pell mell for a distance of several feet before stopping.

Bees here must live all winter on sugar. There are no natural supplies.

Lewisburg, Pa.

[That great bee-hunter is like the writer who, meeting a friend, was asked if he could not join him in a trip to Chicago. He replied: "Delighted; I have never been 200 miles from New York, and particularly in the last two years have been so busy I have not had time to leave the city."

"Too bad," said the other, "what has been your principal literary work!"

"Writing Indian stories!!"—ED.]

What a Smart Woman Can Do.

Mr. Editor:

Please find enclosed fifty cents in stamps, to pay for the BEE-KEEPERS' MAGAZINE for 1888. Well, as I see in the November number a good many complaints, I will go ahead with mine. Some of my stocks did very well, while others were lazy. I got from four stocks one hundred and twenty pounds of apple-blossom honey by June 28th, and the finest quality of fall honey, not so dark as other years, and not so much of it. Mr. Editor, will you please tell me if I am *right or wrong*. I put in a straw hive last year a third swarm, and set it on a home-made box with a little door on, so I could feed at any time. I did not feed this summer. They worked in the box below and above, so when they hung out and did not swarm, I took another such box, half full of empty combs, and put the old straw hive on top. They worked in both hives nicely. Will there be a queen in each hive or not? I only got two swarms out of your American hives. They are good. Have you got a hive with one-pound sections? They are selling here. Last year I had about forty pounds of nice fall honey, so I asked a store-keeper what he was paying for such kind. He said three

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cents a pound, but I refused to sell, and took my honey home, put it in two forty-five-gallon barrels, and put boiling hot rain water with it. When it cooled off I put some vinegar mother in each barrel, and this summer, *I sold ninety gallons of the best vinegar that was in the county, at sixteen cents per gallon.* I paid my tax with it. Please excuse poor writing. I should not make so many mistakes.

Respectfully yours,

MRS. CH. PF.

D. Pa.

[No need of any excuses about the writing. Mrs. Ch. Pf., you have taught many a bee-keeper a valuable lesson. There will be only one queen in the two boxes.—ED.]

The Pike County and Illinois Central Convention—A Word from the Secretary.

Editor Bee-Keepers' Magazine:

Our meeting was not as large as common on account of rain, the heaviest one of the season, which finished up with thunder and lightning and a snow storm.

The question of sending delegates, as stated, was discussed, to some extent, and laid over till our next meeting, which will be held at Clayton, Ill. The MAGAZINE comes to us regular and is read with interest. The honey crop in this section might be called a failure, very little to report. Your favor was gladly received.

Truly yours,

W. T. F. PETTY.

Pittsfield, Ill.

The Alabama Bee-Keepers Association beld a meeting in Montgomery during the State Fair and adopted a Constitution and By-Laws for future operations. The discussion on bee-keeping and honey products was very interesting and profitable, and we should like to see every Southern State follow the example of Alabama in regard to this growing industry.—*Southern Cultivator.*

North American Bee-Keepers' Society.

(*Continued.*)

The convention then listened to an interesting talk by Mr. A. I. Root, of Medina, O., about

Foul Brood, How Shall We Treat It?

Mr. Root said—As soon as foul brood appeared in our apiary, we began burning up the affected colonies. After we had burned about 40 colonies, we found that, in nearly every case, colonies adjoining the stand of a destroyed colony, soon showed signs of disease, and we began to cast about for some way of curing the disease. The first thing used was phenol, diluting it and applying it with a spraying attachment; first tearing off the cappings with a wire hair-brush, which does the work in such a manner that the healthy brood is uninjured. The odor drives the bees out of the hive, but they soon come back, and usually clean the foul brood out of the cells. This treatment does not always cure the disease, but there is this advantage. It prevents the spread of contagion to other colonies. I did advocate the burning of hives, but Mr. Cowan says that immersing them 40 seconds in boiling water destroys all germs. With chaff hives, the chaff must be removed, the hives boiled, and then refilled with new chaff.

Miss Dema Bennett—Is there any danger of communicating the disease by the way of foundation?

Mr. Root—The heat necessary to the manufacture of foundation would destroy the germs. With a small apiary, I believe I would burn up the "whole business" if I found it infested with foul brood.

J. A. Green—There is a disease something like foul brood, but not contagious; the difference is that the larvæ are brown and watery instead of ropy, as in genuine foul brood.

Dr. A. B. Mason—If a larvæ is elastic and ropy, it is a certain indication of foul brood.

Prof. Cook—There are two or three points that need emphasis, viz: We

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cannot depend upon the odor in detecting foul brood, while the elasticity or ropy mass is a sure test; many men have cured foul brood, hence we can cure it, and need not burn things.

B. T. Davenport—I, too, have had trouble from the kind of "dry" foul brood, as mentioned by Mr. Green. I fail to see why it should be called "dry" foul brood as it is watery, although the larvæ does finally dry up. The larvæ will break in two when there is an attempt at removal, but there is no ropiness nor elasticity. The trouble is greater with dark bees than with Italians. I have cured it by a change of queens.

The convention then adjourned until 7:30 P. M.

EVENING SESSION.

The convention was called to order at 7:30 P. M., by President Miller, when the Secretary read an essay from C. P. Dadant, of Hamilton, Ills., entitled,

Comb Foundation, its Manufacture and Use.

The first requisite for a good article of comb foundation is, to get a pure article of beeswax. The making of foundation of wax mixed with paraffine or with ceresine, has been tried several times, and has resulted in a loss to the manufacturer, as the bees detect the imposition more readily than men can. Besides, these artificial compounds melt at a lower degree than pure beeswax, and endanger the safety of the colony, when put in use. In this country, where the extremes of heat and cold are so marked, even pure beeswax, in naturally built combs, sometimes gives way under the heat and weight combined. It is by their lighter specific gravity that paraffine and ceresine are most readily detected. Happily, however, these adulterations are very scarce. The most frequent adulteration of beeswax, that with tallow, is easily noticed by the dull and greasy appearance of the cakes. This wax should be carefully rejected.

J. A. Green—I used 1,500 sections one year; one-third were filled with new foundation, one-third with old foundation, and the remainder with partly drawn comb. Those with the new foundation were finished first, and those with old foundation were completed last.

A. I. Root—Has any one compared "starters" with full sections of foundation?

R. R. Murphy—I have, and the ones with starters only were last finished.

F. Wilcox—I use foundation in sections, and I cannot understand how Mr. Doolittle can secure and use natural comb, as he advocates.

H. R. Boardman—I wish those gentlemen who have trouble in getting nice honey when using old combs, would tell us how they get their old combs.

J. A. Green—I take nice new combs, and the white fins that the bees build.

R. R. Murphy—I put on an upper story in the fall, and allow the bees to build comb in the frames, then extract the honey, and use the comb the next year.

Joshua Bull—I have used combs of the previous year's building and the bees commenced work in the sections first, and no one could see any difference in their appearance, when finished, from new combs built from foundation.

Miss Bennett—I have tried filling sections alternately with foundation and with comb, and both were worked out, filled and finished the same, and there was no difference in appearance.

James Heddon—I prefer foundation to drawn combs; it is finished quicker and looks better.

President Miller—I have had bees fill and finish sections of comb before they even began work upon sections of foundation, but perhaps I ought to explain that they did not begin work at all that season upon foundation.

H. R. Boardman—Much of this confliction is the result of different management. I would like to say, however, that Mr. S. F. Newman, of Norwalk, O., told me that, had it not been for his stock of empty combs, he would not have had a pound of honey; while, as it is, he has two or three thousand pounds of comb honey.

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T. F. Bingham--If I could get plenty of nice, white combs I should use them in the sections.

A. I. Root—In using combs, the cells are deep, and the honey does not ripen so quickly as when the cells are filled as they are drawn.

H. R. Boardman—I am not in favor of using combs that are so old that they are black or discolored, and the sections soiled. But here is a point: Some of us have been hiving swarms upon empty frames; this hiving is sometimes done when honey is coming in at the rate of 10 or 15 pounds per day, now if the sections are not filled with combs, where is this honey to be stored? Unless there is a place to store it, there is a loss.

W. Z. Hutchinson—The honey-flow is often slow at first, and the bees are reluctant to begin in the supers. As a consequence, the brood-nest is crowded with honey. Were combs used in the sections, the bees would begin storing honey in the sections sooner. This would relieve the pressure upon the brood nest, and large quantities of brood is the result. With me, the bees not only commence work in the supers when combs are used, but they finish the honey sooner, and it has an equally fine appearance. I fail to comprehend why some of these other gentlemen cannot succeed with empty combs.

James Heddon —There may be a difference in the combs built in different localities.

The convention then adjourned untill Thursday at 9 A. M.

THE SECOND DAY.

MORNING SESSION.

The convention was called to order at 9 A. M., by President Miller, when Mr. T. F. Bingham, of Abronia, Mich., read an essay, entitled:

Production of Extracted Honey for Table Use.

The heading of my essay implies that extracted honey has other than table uses. Those uses, however, are not in this essay to be even alluded to. I am merely to disertate upon this special sweet as it relates to table purposes.

The above heading also implies that there is a difference in extracted honey —either because it is differently produced, or that after its production it is subject to common and material changes, as ordinarily handled by bee-keepers or honey-producers.

Let us first consider that honey, while being a peculiar sweet, is in no wise an exception to other non-crystalized saccharine substances in its tendency to absorb water and undergo fermentation. Honey, like other sweets, takes on these abnormal conditions, slowly or with rapidity, in proportion to the heat and moisture with which it is surrounded; the only exception to this rule being in the consistency of the honey itself. Thus if the honey is very thick, its changes are slower, while if thin, they are more rapid.

This view will enable every one familiar with honey, whether in the comb or extracted, to understand why there is such diversity in the keeping qualities of honey. Comb honey often undergoes changes while in the hives, rendering it necessary for the bees further to refine it.

I dwell upon this point particularly, as it lies at the foundation of the successful production of all strictly No. 1 honey. Much has been said and written concerning adulterated honey, etc., but it remains for the bee-keepers themselves to determine the future demand for honey.

The above outline of facts leads us directly to the conditions necessary to the production and maintenance of strictly No. 1 honey of any class, whether American clover honey (in which even Canada sympathizes heartily), or American basswood linden Canada honey, in which we all sympathize.

The first condition not depending upon the flowers from which honey is obtained, may be briefly stated thus, viz.: To be left long in the hive of a populous colony of bees, before extracting. On this point much has been said and written, and while I

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shall not attempt argument on this *disputed* question, I will humbly ask, who shall decide?

No one will deny that bees have a large stock of "bee sense," and that among bees "doctors never disagree!" Then, if the *bees* do not regard honey as having *keeping qualities* until it has been refined and gauged and sealed, why should bee-keepers? Assuming, then, that clover or other honey has been duly refined, gauged and sealed by the bees before extracting, and that we have just now placed it upon the table in a neat Muth two-pound bottle, just in time to cool before tea, need we hope for a better presentation for table use?

As I have now the honey upon the table, and have outlined the method of its production and presentation, it would seem that the leading query had been answered. But I wish to further intimate how, having obtained the best quality of honey of any class, whether buckwheat or other, it may be maintained in its pristine excellence?

If extracted late in the season, after the weather has become cool, it will keep perfectly sound in a clean pine barrel, bunged tightly, if stored in a cool place. The barrels should be stood on the end not having the bung, if designed to be kept long into the next season. By so doing the head having the bung may be easily removed, and one or two inches of the surface honey taken out.

The object of separating this surface honey from the honey below or deeper in the barrel is to avoid mixing that which has suffered by contact with the air, from that which has not. Upon opening the barrel, if any change has taken place, the surface will be found to be soft, perhaps foamy. Remove this soft honey until you find the solid honey below. Use the foamy honey for vinegar; melt the other in a water bath; skim and put it in Mason jars, nicely sealed and placed in a cool place, the colder the better. Such honey will remain clear for a long time, and will be as fine as if just taken from the combs, as long as it may be desirable to keep it. If only such honey were offered to the public, the market would not be *overstocked*, and the *prices* would be satisfactory.

T. F. BINGHAM.

After the reading of the above essay, it was discussed as follows:

J. A. Green—I prefer tin for use in storing honey, as barrels sometimes impart a flavor to the honey, and the honey cannot be liquified without first removing it.

R. F. Holtermann—I prefer the square tins with a wooden jacket.

A. B. Mason—I like the barrels. The honey can be easily and quickly removed by using a small-sized garden spade.

A. I. Root—I am not sure that barrels taint the honey, but I do know that it is never tainted by the use of tin.

Geo. E. Hilton—Second-hand lard-tins can be secured of grocers and butchers for 15 cents each, and they are excellent for storing honey, and will even answer for shipment.

President Miller—Several years ago Mr. Doolittle mentioned wooden boxes, coated inside with wax, as a cheap package for shipping honey. The honey was put in just as it was beginning to granulate, and left until granulation was completed, when it was ready for shipment.

James Heddon—I tried that 16 years ago, but it is of no value. I produce honey by having it perfectly ripened in the hives. It is first stored in large settling tanks, then drawn off into the square, jacketed tin cans, each holding about 50 pounds. The opening of the cans are securely closed by screw caps with corks inside, and the honey is then stored in a cool place until the time comes for shipment. You may talk as much as you please, but the majority of customers prefer their extracted honey in a liquid state. I will now tell how I liquify it before shipment: One end of the cellar under my honey-house is partitioned off from the rest of the cellar. In this small space is a stove, and in connection with the stove is a coil of steam-pipe, which heats not only this small

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space, but a large box above it on the first floor. In this box can be placed 800 pounds of honey in cans. The cans are put in at night, a chunk of wood put into the stove, and the next morning will find the honey all melted; when it may be removed and a like amount of candied honey put in its place. I can in this manner liquify 1,600 pounds of honey per day with very little labor. The square, jacketed tin cans are the best package for a jobbing trade.

Prof. Cook—There is a difference in tin. Lead tin should not be used on account of the chemical action. I C charcoal tin is the best.

James Heddon—Would not Coke tin answer?

A. I. Root—It does not look so nice.

N. W. McLain—Some chemist of Europe reported in the *British Bee Journal* that there was no danger from chemical action upon any tin that is heavy enough to hold honey.

T. F. Bingham—So far as chemical action is concerned, it makes no difference as to the kind of tin, so long as it is *tin*, not lead.

R. F. Holtermann—Unless Coke tin is carefully washed, it is more likely to rust when standing empty.

J. A. Green—When honey is intended for table use tin should be used; but for shipping large quantities, oak barrels, paraffined, as you would wax them, answer a good purpose.

James Heddon—It depends upon circumstanses.

A vote on the matter of vessels used for shipping honey resulted as follows: Thirteen members preferred tin; 4 preferred wood; and 40 preferred both.

At this time Prof. A. J. Cook, of Agricultural College, Mich., took occasion to speak of the recent enjoyable visit to America of Mr. Thomas W. Cowan, the distinguished editor of the *British Bee Journal*, who had called on so many prominent apiarists of the New World. The Professor said that it had never been his pleasure to meet with one so familiar with everything connected with bee-keeping, and with every person of any reputation as a bee-keeper. That in the future this visit of Mr. Crowan's would often be referred to by those who were so fortunate as to meet him, as being one of the brightest events occurring in the history of progressive American apiculture. In view of the many resulting benefits, and the pleasant and profitable recollections following such a visit, the Professor moved that the thanks of the Society be tendered to Mr. Cowan for his visit, and that he be elected an honorary member of the "North American Bee-Keepers' Society." The motion was seconded and carried unanimously.

Immediately following the above merited action of the convention in regard to Mr. Cowan, and so appropriate, too, was another motion made by Prof. Cook, relative to the Rev. L. L. Langstroth, the honored Father of improved bee-culture in America. Mr. Cowan had told Prof. Cook that of all the ingratitude from American bee-keepers, the greatest was that which had robbed Mr. Langstroth of the rightful benefits resulting from the invention of his movable-frame hive, and that consequently the North American Bee-Keepers' Society could not do itself more honor, and express its appreciation of his efforts, than to forward a goodly purse to Mr. Langstroth, who, in his long-continued sickness, would receive it with such grateful appreciation. The Professor then moved that a collection be taken up. and that it be added to the amount remaining in the treasury, after defraying all the legitimate expenses of the convention, the Secretary be instructed to send the whole to Mr. Langstroth, together with expressions of sympathy from the Society. This motion was unanimously carried.

After a short recess, Prof. A. J. Cook, Agricultural College, Mich., gave a most interesting lecture on

The Legs of the Bee,

which the Professor promises to write out for publication as soon as possible. A vote of thanks was given the Professor for his lecture, after which the meeting adjourned till 1:30 P. M.

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AFTERNOON SESSION.

The convention was called to order at 1:30, with President Miller in the chair.

Mr. Thomas G. Newman, of Chicago, Ill., then gave an address on

The Best Name for Extracted Honey.

It was uanimously voted that no more appropriate name for "extracted honey" can be selected than its present one.

After this there followed essays by J. H. Masten, of Hartford, N. Y., and S. M. Doolittle, which we will present in a subsequent issue of this MAGAZINE.

EVENING SESSION.

The Chapman Honey Plant.

Prof. Cook—I should like to know the feeling in regard to whether it is advisable to try to induce the government to add the Chapman honey-plant to the list of seeds that it sends out free.

M. M. Baldridge—I do not favor planting anything for honey alone.

A. I. Root—If the Chapman honey-plant were like Alsike clover, or buckwheat, it might be well for the government to add it to its list. I believe that there is no plant that it will be profitable to cultivate for honey alone.

James Heddon—Unless a plant would spread and take care of itself, I would not fuss with it.

Upon an expression (not a vote) being taken, it was found that the members were equally divided upon the subject, and the matter was dropped.

The President then appointed the following Committee on Exhibits: H. R. Boardman, East Townsend, O.; R. L. Taylor, Lapeer, Mich., and Geo. Thompson, Geneva, Ill.

The following discussion then took place on the topic,

How to Ship Honey.

In reply to a question, Mr. R. A. Burnett said that honey ought always to be sent by freight. When honey is sent by express the rapid handling breaks out the combs; he had never been able to collect any damages from an express company, while he had done so from a railroad company. A difference in size of crates and packages is desirable. As a rule, single-tier cases are better, and about ten small cases are sold to one large case.

James Heddon—The commission houses are dirty places for keeping honey. The honey is soiled in bringing it in on a dray; then the dust and rolling out and in of boxes, barrels, hen-coops, etc., still further soils the cases. The only clean honey I saw in your store to-day, Mr. Burnett, was some sent there by Mr. Hutchinson, and he had paper wrapped around it when shipped.

R. A. Burnett—Yes; and he requested me to remove it upon its arrival.

(To be Continued.)

Questions and Answers.

Question No. 32.—Why is it that on the 20th day of September my bees have drones in as great quantity as in swarming time? I expect them to swarm almost any day, but they do not. The surplus boxes are filled with buckwheat honey very slowly. R. H. F.

When honey comes in drones will be retained until late in the season. You may be without a queen. In that case they will not kill the drones.—H. D. CUTTING.

An increased honey-flow, after a long spell of dearth of nectar, is often attended with a development of drones, particularly if the queens are old.—I. P. H. BROWN.

Your bees are either queenless, and have a fertile worker, or they have an exhausted queen, that is an old one that can lay but few fertile eggs.—FRANK A. EATON.

I could not give a very correct reason, especially as I am not aware of your location. If I knew your latitude I might give a reasonable *guess*. Otherwise, I cannot.—A. L. SWINSON.

I can't tell from the data given. There may be some laying queens. Fertile or laying workers may be present, or there may be a great excess of drone comb. "Bees do act funny" sometimes.—J. E. POND.

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If it is only a few swarms that are thus affected, I should say, because they are queenless, or have poor queens that the bees are trying to replace. But, if it is a general thing all over the apiary, it is because your honey yield has been such that the bees have not felt hard times enough to expel the drones. On the first heavy frost and stoppage of the honey-flow, you will find your drones will disappear, except in queenless stocks. When the stocks have been strong all the season through, it is no unusual thing to have swarms issue in buckwheat time.—WILL L. KELLOGG.

Question No. 33.—1st. Bees wintering in cellar need feed. How and what would you feed?

2d. Bees wintering in summer stands need feed. How and what would you feed? ED.

1. The so-called "good candy" on tops of frames.

2. I should not have them in such a fix, but should use the "good candy" also.—J. E. POND.

I would feed them in the same way, whether in the cellar or out. First with frames of sealed honey, if I had them, if not, a syrup made of coffee A sugar in some good feeder, of which there are many.—FRANK A. EATON.

Knead pulverized sugar into extracted honey until you get nearly a dry mass, which press into cakes, and lay under the quilt above the cluster. Place some between the frames. Repeat and increase quantity as the case requires.—J. P. H. BROWN.

1. If you have comb honey to spare lay it on top of the frames under the quilt. The good candy is an excellent winter feed, as you can take granulated sugar and water, boil until it will just begin to boil up on your fingers when dipped in cold water, stir until it will grain, then place it on plates and when cool place it on top of frame and you will be all right as far as feed is concerned.

2. Same as above, don't try to feed liquid feed in winter.—M. D. CUTTING.

1st. I am not posted in cellar wintering and mode of feeding, but I would feed either, honey or sugar, depending on the *cost* of each.

2d. I would reduce sugar or honey—which ever I decided to use, being governed by the *cost*—to a thin syrup state and feed it by putting it into 7 or 8-quart milk pans, covering them with their muslin clothes, and sitting a panful of such feed in the top story of each hive, *directly* on the *frames*. In a tightly made hive these pans with cloth covers, are the *best* feeders I know of and feeding can be done the quickest. I fed in spring of 1886, 1,200 lbs. of sugar and in spring of 1887, I fed 1,000 lbs. to about 60 colonies each spring, with such feeders.

Take common brown sugar, and put just water enough with it to melt it. Boil this slowly, stirring well to prevent scorching, till it is hard enough, then drop it in cold water, to form a cake like candy. Then run it into some convenient dish, like a cake pan, and let it cool. Place this cake on top of the frames and cover with quilt, so the bees can come up and get it. This for the cellar. Do the same for the out-door bees, except to cover the cake warmer, so the bees won't chill. A good idea is to fill the cap lightly with fine straw, and then place it on the hive. Use no liquid food in winter. Combs of sealed honey would be better in either case, but I suppose you would not ask for advice if you had them.—WILL M. KELLOGG.

Question No. 34.—How far do you prefer that the top bars of brood frames should project over the end bars to form the supporting arms? L. O. Q.

About one inch.—J. P. H. BROWN.

Three-quarters of an inch.—WILL M. KELLOGG.

I should prefer that there be seven-eights of an inch projection.—A. L. SWINSON.

I use a top bar, projecting five-eights of an inch. You will find many frames that project three-fourths.—H. D. CUTTING.

Mine are scant seven-eighths of an inch for a Langstroth frame, which

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leave a three-eight inch bee space, and one-half inch to rest on the one-half rabbet.—FRANK A. EATON.

Just enough to catch on the rabbets and leave space for the bees between ends of frames and sides on ends of hives. An inch is about right in my hives.—J. E. POND.

The Mail Bag.

As I have seen nothing in your valuable MAGAZINE from this part, I will give my report. Went into winter with nine in chaff hives. At roll call this spring all responded in good order. It was the finest spring for bees I ever saw up to May 15; then cool and wet. The thermometer stood from 40 to 50° every morning till nearly the last of June. White clover was in full bloom May 21st and lasted till July 10. It was so cold and wet that the bees never went into sections till the first of July. After this we have had it dry and hot, no rain to amount to anything till to-day. Since June 20th the thermometer stood in the shade 104°. The honey crop is a failure. I increased to 12; will average about 10 pounds to colony. They are consuming more than they are gathering. The outlook is that we will have to feed sugar to winter on. Basswood only lasted five days and is scarce. Yours,

W. B. BAKER,

Canton, W. Va., August 2, '87.

[Friend Baker, your report is a model one, concise and to the point. We have had a very peculiar year for honey, all over the United States. You are fortunate to get any surplus. Your report was by mistake laid aside for the wrong month.—ED.]

Editor Bee-Keepers' Magazine:

Please find enclosed one dollar for the MAGAZINE for two years. I cannot get along without my MAGAZINE. This has been a bad season. I got one-fourth more honey last year from nine colonies than I did this year from twenty-six. I propose to use some of my honey to give bees I shall get from my neighbors who will give them to me rather than destroy them in their box hives. I took five swarms from them this summer. A. MURRAY.

Staten Island, N. Y., Nov. 29, '87

[We are glad you like the MAGAZINE. Your plan of getting bees we think a good one.—ED.]

Editor Bee-Keepers' Magazine:

Please discontinue my subscription, as I do not keep bees at present, and will not in the future. I admire your independent spirit. No ring controls *your* paper. I have had the new Heddon Hive; do not think it comes up to the recommendation it gets from some advocates. Yours truly,

G. M. FULLER.

Oakfield, N. Y.

[We are sorry to lose you as a subscriber. Our friend Heddon ought to insert your letter among his recommendations. Thanks for your kind words, and doubly so, as we know them to be the truth.—ED.]

We have had a very poor honey season. Bees in good order and mine for sale cheap. J. P. MCELRATH.

Asbury, N. J.

[We regret to hear of poor season, but that has been the universal cry throughout the United States. We hope, however, it has not discouraged you.—ED.]

CONVENTIONS.

1888—January 10, 11.

The Ohio State Bee-Keepers' Association will hold their Fifth Annual Convention in the United States Hotel, corner High and Town streets, Columbus, Ohio, January 10 and 11, 1888. An interesting programme will be arranged. Reduced rates at the above hotel. FRANK A. EATON, Sec.

Bluffton, Ohio.

1888—January 17, 18, 19.

The New York State Bee-Keepers' Association will meet at Utica on the

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above date. Reduced board has been obtained. For further particulars apply to

GEO. H. KNICKERBOCKER, Sec.,
Pine Plains, N. Y.

1888—January 17, 18.

The annual meeting of the Northwestern Illinois and Southwestern Wisconsin Bee-Keepers' Association will be held in Rockford, Ill., Jan. 17 and 18, 1888, in G. A. R. Hall, corner State and North Main streets. Dr. Miller will be present and a good programme prepared. D. A. FULLER, Sec.

Cherry Valley, Ill., Dec. 12, '87.

1888—Jannary 18, 19.

The annual Convention of the Vermont Bee-Keepers' Association will be held at the Van Ness House, Burlington, Vt., on the 18th and 19th of January, '88.

R. H. HOLMES, Sec.

Shoreham, Vt., Dec. 7, '87.

1888—January 24, 25, 26.

The Eastern New York Bee-Keepers' Association will meet in convention on January 24th, 25th and 26th, in Agricultural Hall, Albany, N. Y. Every one is welcome. We are sure to have a pleasant and profitable meeting. This year has been full of lessons, and nothing could be more instructive than to hear how each one has fared.

JOHN ASPINWALL, Sec.

Reviews.

"*How I Produce Comb Honey*," by Geo. E. Hilton, is the title of a little pamphlet on the subject of comb honey, which the author kindly sent us recently. It is a reprint of an essay read at the joint meeting of the State Farmers' Institute and Fremont Progressive Bee-Keepers' Association, at Fremont, Mich., in February, 1887. This little essay is quite instructive, especially on the point of preventing the cessation of storage of honey in the surplus arrangement on the appearance of a swarm, and also some very good advice about the careful cleaning of sections and classifying of honey when placing upon the market. Published by the author at Fremont, Mich. Price 10 c.

We feel we ought to say a word for that well conducted monthly *Arthur's Home Magazine*. As a *family* magazine of pure tone, it ranks among the first. It is an illustrated periodical. We have been receiving it for the past year and would say that it does not concentrate all its good articles in those numbers issued near the subscription season, but contains an even amount of good matter throughout the year It is published by T. S. Arthur & Son, Philadelphia, Pa.

Profit in Poultry is the title of a new book published by O. Judd Co., of 751 Broadway, N. Y. It is a capital work on the subject. We have learned enough from its pages already to save us twenty times its cost. Every style of *practical* poultry house is described. We emphasize *practical*, because in poultry, as well as in bee-keeping, there is plenty of theory abroad in the land, and you can build such a nice poultry house on paper, you know. Any one keeping chickens will save many a dollar by buying this book. We can furnish it at the publisher's price. A neatly cloth bound copy postpaid for $1.

Catalogues Received.

Richard H. Young, Westboro, Mass., Chicken Fixings, No. 10.

The New American Club list. Wholesale rates newspapers and periodicals in United States and Canada, also Italian bees, poultry, seeds, etc. C. M. Goodspeed, Thorn Hill, N. Y.

A Novel Business Calendar and Stand.

A most novel, convenient and valuable business calendar for 1888 is the Columbia Bycicle Calendar and Stand, just issued by the Pope Mfg. Co., of Boston, Mass. In this calendar a new departure has been made, decidedly unique and different from any previous attempt in calendar construction. The 366 leaves, one for each day in the year, to be torn off daily. A portion of each leaf is left blank for memoranda, so arranged that the memoranda blank for any coming day can be turned to immediately at any time. The pad rests upon a portable stand, and when placed upon the desk or writing table the entire surface of the date leaf is brought directly, and left constantly, before the eye, furnishing date and memoranda, impossible to be overlooked. Upon each slip appear fresh quotations pertaining to cycling from leading publications and prominent writers—a collection which illustrates the popularity and universality of cycling the world over.

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THE HONEY MARKET.

NEW YORK.

Comb honey. The market on this article is strong and steady. We quote 1 lb. sections paper boxes @ 21 c.; white clover, fancy glassed in 1 lb. sections @ 18 c.; 2 lbs. @ 17; buckwheat honey in 1 lb sections unglassed @ 12 c.; 2 lbs. glassed @ 11 c.; beeswax is steady and we quote 24 @ 26 c.

THURBER, WHYLAND & CO.

Nov. 25th, '87.

PHILADELPHIA.

White clover,	fancy,	1 lb. combs	....	17 @ 18
"	"	2 lb.	"	....14 @ 16
Buchwheat	"	1 lb.	"	....12 @ 13
"	"	2 lb.	"	....10 @ 11

Common or dirty and leaky, must sell somewhat lower.

Extracted per lb. 6@8c—small glasses preferred.

Choice yellow wax per lb. 22 @ 23c.; inferior 20 @ 21c.; white wax 26 @ 28c.

PANCOAST & GRIFFITHS.

Nov. 10, '87.

CINCINNATI, OHIO.

There is a quiet but fair demand for honey of all kinds. Extracted honey brings 4@9 c. a lb. on arrival. Demand exceeds arrivals. The demand for comb honey is rather tame. It brings 16@20 c. a lb. for best in the jobbing way. Demand is good for beeswax, which brings 20@22 c. a lb., for good to choice yellow, on arrival.

CHAS. F. MUTH & SON.

Dec. 12, '87.

CHICAGO.

The receipts of honey are much larger and prices easier, selling 1 lb. sections of white honey at 18 @ 20 c.; 2 lb. frames without glass 16 @ 17 c.; extracted 7 @ 10 c. No overstock at present. R. A. BURNETT.

Nov. 21, '87.

WANTS.

Advertisements in this column not to exceed 8 lines, 5 cents per line for each insertion.

WANTED—The address of 4,000 Bee-Keepers, with 5 cts. to pay postage on a sample pattern of my C. B. P. E. G. Dimon, Box 20, Sheldon, Vt.

Mention this Magazine when answering advertisement.

THE MAINE

Temperance Record.

Vol. eleven for 1888. Monthly 50 cents a year. Nice paper, finely printed, illustrated.

If you went to keep posted in Temperance matters in Maine, send for it. Address,

BRACKETT & CO., Belfast, Me.

ROPP'S

Commercial Calculator.

Practical Arithmetic made easy, simple, and convenient for ALL—whether *pro*ficient or *de*ficient in figures—by this unique and wonderful work. An entirely *new*, improved, and greatly enlarged edition has just been issued, which is unquestionably the most useful, practical, and comprehensive work on the "Art of Rapid Calculation," ever published in any language.

It embodies all the *practical* features found in Higher Arithmetic, Lightning Calculators, Ready Reckoners, in Interest, Discount, Exchange, Wages, Log and Lumber Tables, besides a great many *original* Rules and Tables, which really are the most essential and valuable things in the book.

The first part contains 125 commercial Tables of *ready*, or instantaneous, calculations in all kinds of Grain, Stock, Hay, Coal, Cotton, Merchandise; in Interest, Wages, Trade Discount, Exchange; in measurements of Logs, Lumber, Land, Cisterns, Tanks, Bins, Wagon-beds, Corn-cribs Cord-wood, and Carpenters', Plasterers', Masons', and Painters' work.

The se ond part is a complete Arithmetic, in which all its rules and principles, from Numeration to Mensuration, are clearly stated, fully explained, and practically applied, giving all the *simplest*, *shortest*, and most *convenient* methods known for *rapid* calculation. Among its many *original* features, we have only space to mention a very simple process for adding long columns of figures by "Casting out the tens," whereby the mind is greatly relieved, and errors avoided; entirely new methods for shortening the operations in Multiplication and Division, in Merchandising, in computing Interest, True, Bank, and Trade Discount, Profit and Loss, Stocks and Bonds, extracting Roots, and especially in practical Mensuration, all of which will prove highly interesting and beneficial to every one who appreciates this great and useful science, particularly young people, who desire to become proficient in rapid methods of calculation.

The book is neatly printed on finest quality of paper, elegantly bound in pocket-book form; consists of 128 pages, and the No. 3 and 5 have a renewable Account-book attached, which contains self-instructing formulas for keeping a systematic record of receipts and expenditures—in fact, all about bookkeeping required by the masses. Is also accompanied by a silicate slate, pocket for papers, and apart from its mathematical merits, is one of the most convenient and desirable pocket memorandums ever offered to the public.

No. 1, Fine English Cloth, Silk Finish - -$ 50
No. 3, Am. Russia Leather, Acc't, b'k, slate, 1 00
No. 5, Russia Calf, Gilt edges, " " 1 50

Be sure and designate by number which you want when you order. Address,

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Barrytown, N. Y.

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THE POULTRY BULLETIN,
NEW YORK CITY

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1888.

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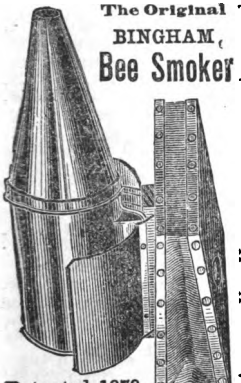

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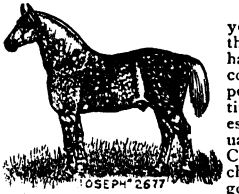

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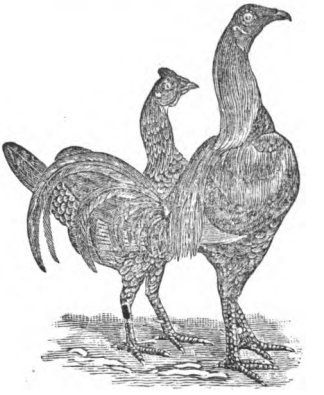

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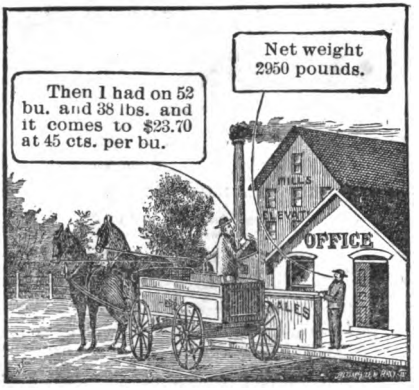

Farmer—Good morning, sir. What are you paying for corn to-day?

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F.—What is the weight of my load?

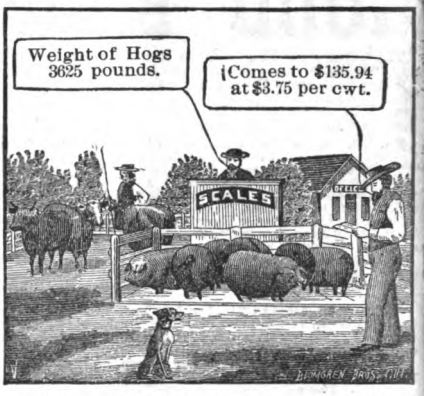
G. B.—The net weight is just 2,950 pounds.

F.—(Opening his Calculator)—Then I had on 52 bushels and 38 pounds, and it comes to $23.70.

(See Grain Tables, pages 15, 88; also Rules, Art. 94, 95.)

G. B.—(After figuring it up)—Correct. Why, since when can you figure so *rapidly?*

F.—Oh, ever since I use Ropp's Commercial Calculator. It is a capital work and saves time, labor, dollars.



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(See Stock Table p. 6; and Rules, Art. 98, 99)

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Vol. XVI. FEBRUARY, 1888. No. 2.

THE BEE-KEEPERS' MAGAZINE.

Devoted to Bee Culture

JOHN ASPINWALL,
EDITOR AND PROPRIETOR,
BARRYTOWN-ON-HUDSON,
NEW YORK.

H. Gilmour Inc N.Y.

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50 CENTS PER YEAR.

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BARRYTOWN, JANUARY, 1888.

EDITORIALS, &c.

INSTRUCTIONS TO CORRESPONDENTS.

Correspondents writing matter for publication will confer a favor on the editor by writing on only one side of the paper, and giving their full name and address. The latter will be given in the MAGAZINE, unless there is a request to the contrary. Kindly write matter for the MAGAZINE on a separate sheet from business communications, so that we may not have to mutilate business letters to get at the literary matter. Rejected manuscript cannot be returned unless stamps are forwarded for that purpose.

Song of the Bees.

D. AIKEN.

We watch for the light of the morning break,
And color the grey eastern sky,
With its blended hues of saffron and lake,
Then say to each other, "Awake! Awake!"
For our winter's honey is all to make,
And our bread for a long supply.

Then off we hie to the hill and the dell,
To the field, the wild wood and bower,
In columbine's horn we love to dwell,
To dip in the lily with snow white bell,
To search the balm in its odorous cell
The thyme and the rosemary flower.

We seek for the bloom of the eglantine,
The lime, painted thistle and brier,
And follow the course of the wandering vine,
Whether it trail on the earth supine,
Or 'round the aspiring tree-top twine,
And reach for a stage still higher.

As each for the good of the whole is bent,
And stores up his treasure for all,
We hope for an evening of heart's content,
For the winter of life without lament,
That summer is gone, with its hours misspent,
And the harvest is past recall.

THIS number of the MAGAZINE will appear a few days late that we may give a report of the convention at Utica.

THE HONEY PRODUCERS' UNION.

The New York State Bee-Keepers' Association inaugurated a movement at their recent meeting which will, in our estimation, be a great boon to bee-keepers' carrying on the business, either on a large or small scale. We all are aware how difficult it is, early in the season, to determine the extent of the honey crop throughout the United States. Many and many a dollar would be saved to the bee-keeper if he only knew what the crop was and whether the price of honey was to go up or down. The present year illustrates this to some extent, as those holding their crop at this time will probably lose by the operation.

The plan which is to be carried out under the name of the Honey Producers' Union is as follows :

The Secretary of the New York State Bee-Keepers' Association will make out reports from all the honey producing states as follows, and mail them on date named to members.

April 10—Condition of bees, and honey on hand unsold.

May 10—Condition of bees.

June 10—Condition of bees, and prospects of crops.

July 10—Honey crop.

Aug. 10—Honey crop.

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Sept. 10—Final report of honey crop.

This information is to be obtained through reporters, of which there shall be not more than six in each State. These reporters will receive the reports of members in their districts, and shall forward his report to headquarters so it shall be received by the first day of each of the six months named.

Membership is as follows: Regular members of the New York State Bee-Keepers' Association, who have paid their membership fee of $1, will have these reports free. Others outside of the State desiring to enjoy the priviliges of this Union can do so by sending to the secretary, Mr. Geo. H. Knickerbocker, Pine Plains, New York, $1, with their name and address plainly written. These members will be entitled to the six reports.

It is understood that all the members will drop a postal to the reporters in their district on the 20th of each month previous to the one in which the Secretary will report. For instance, on March 20th, report condition of bees and honey unsold; April 20th, condition of bees, and so on.

The Union will do more to help the honey market than anything yet devised. It will enable the keeper to sell his honey intelligently, besides posting the commission houses and buyers as to the state of things. Members must agree not to make these reports public as otherwise the object of the Union would be frustrated. It must be considered confidential advice.

You will be able to tell whether it is a short crop or a heavy one, by comparing the first and second reports, and from the last ones you will obtain a clear idea of just what the market is going to be so you can sell intelligently and at good figures.

THE meeting of the New York State Association was quite a success, though but few members were present. We heartily regret that no steps were taken towards the forming of a grand National or International Association. The subject was discussed and the latter term rather condemned it, as it would indicate something more than a union with the Canadian bee-keepers. In using the term heretofore we had not looked at it in that light. We do not desire to debar our Canadian friends from the association which we hope to see formed at no distant day, and they could be admitted under the term *National* as well as *International.*

The subject of the formation of a representative organization was received with favor, but the meeting being small and the subject so vast, the members desired time to think it over and did not believe our meeting large enough to take any active steps. The intention is that should an organization of a national character be formed, the Honey Producers' Union should form a branch and be somewhat under the control of the great organization to come.

WE have attended quite a number of conventions, but nowhere have we been better accommodated in every way than at Utica. It is not within our recollection when the association has had such a comfortable time all through.

To begin with, Baggs' Hotel is a very fine one, the service is good, rooms warm and table excellent. No one could ask for better, and many of the best New York hotels would profit largely by getting some points from Baggs'. The resolution thanking the proprietors was not an empty one, but entered into heartily by every member who patronized the house.

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Another direction, in which we were highly gratified, was the manner the daily papers of Utica reported our meeting. We have never seen such accurate reports nor more intelligent reporters. It seemed as if each one of them was a bee-keeper, and could appreciate all the best points in the meetings, and get them down. If the balance of the columns of the *Utica Herald*, the *Utica Press* and the *Utica Observer*, are filled with as accurate reports, of which we have not the least doubt, persons living in Utica and vicinity are to be heartily congratulated. Altogether the association was better treated in Utica than in any of the other meeting places.

We regretted to see that after all that has been said regarding advertising at sessions of the convention, a member availed himself of an opportunity by puffing up his wares and predicting the universal use of his patent. This person is one of the best fellows you ever saw, and one we think much of, but we hope that this advertising will not be repeated. We do not want the Heddon advertising business to be a feature of our State convention.

We desire to acknowledge our indebtedness to the *Herald*, *Observer* and *Press* of Utica, N. Y., for the report of the N. Y. State Bee-Keepers' Association Convention which we print. The accuracy of the reports leave nothing to be desired, and permitted us to enjoy every minute of the meeting instead of having to act as reporters ourselves.

THE SCENT OF BEES.

Mr. R. E. Brand, in another column, gives us an account of some interesting experiments by which he has become convinced that *actions* rather than *scent* determine the actions of bees towards a robber. We think that further investigation will convince Mr. Brand that it is probably a combination of both. Mr. Thos. W. Cowan, referring to the Alexandria hive in his work entitled "British Bee-Keepers' Guide Book," says on page 43, in reference to the use of the two boxes or hives one above the other: "Should the colony which is placed in the lower box persist in swarming, the swarm is hived in the second box * * * and a floor board, which will form a separating board, having perforations, is put on the body-box, another entrance having been first opened above the old one. After two or three days, the swarming fever having been satisfied, the bees may be united by the withdrawal of the separating board, and having the same scent will work together peacably without any attempt at swarming again." This method in principle is the same as Mr. Brand with division board. Mr. Cowan only refers to the scent as an active agent in restoring quiet in the hive. This would require us to assume that a swarm on leaving the parent hive assumed a new scent. On page 94 of the same work, Mr. Cowan says: "As success in uniting depends on the bees having the same scent and being filled with sweets."

Rev. L. L. Langstroth, in his work, says: "Members of different colonies appear to recognize their hive companions by the sense of smell, * * * just as each mother in a large flock of sheep is able, by the same sense, in the darkness to distinguish her own lamb from the others." And further on he says: "A few seasons ago, however, I discovered that bees often recognize strangers by their actions, even when they have the same scent." Thus both scent and actions appear to play a part

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in the maintenance of peace in the "queens" dominions." The matter, however, will bear further investigation.

MR. YOUNG.

MR. YOUNG, of whom every one who has met him has such pleasant memories, will surely be pleased to know that he has returned home in safety, and that he has not forgotten America and its bee-keepers. A few days since we received the following:

MR. EDITOR: Will you kindly allow me to express, through your honored bee journal, my most cordial thanks for all the friendliness and affability which were so profusely shown to me during my memorable visit amongst the American and Canadian bee friends. I will, as long as I live, take delight in the recollections of my trip, and never! no, never! forget the world's most able bee-keepers, nor their great hospitality towards me as a stranger. I only regret that my time was so limited that I had no opportunity of personally calling on the many more, whose names were so well known and dear to me, through the bee journals.

Respectfully yours,
IVAR S. YOUNG.

Christiania, Norway, November, 1887.

We believe that all those who had the honor and pleasure of entertaining this gentleman will acknowledge that every moment of his stay was an enjoyable one to his host, and that they regretted the hour which marked his departure.

THE *Advertising Reporter* during the last year has been of great service to us. In former years we have incurred many bad debts by inserting advertisements of parties who did not pay. Now, with the addition of this invaluable assistant, we are always sure where we stand. The last volume, No. VI, is very complete.

WE desire to commend the officers of the Vermont Bee-Keepers' Association for their enterprise in getting up so neat a programme as they have forwarded us. Singularly enough, the Vermont and the New York Associations met on the same days. It would be well to avoid this, if possible, in the future, as frequently persons desire to attend both. The space of a week, one way or the other, would probably make no difference to the members of either Association. We commend this suggestion to the Secretaries of the several Associations.

THE editor of the *American Bee Journal* in the issue of December 28, 1887, says:

"We know of no better hive than the Langstroth for all purposes and all latitudes."

Mr. James Heddon will please accept our heartfelt sympathies.

For the Bee-Keepers' Magazine.

THE HERMIT OF HOOSACK.

An Apiarian Romance.

BY GEO. A. STOCKWELL.

(Concluded.)

CHAPTER XV.

On entering the hermit's house the invaders gave their attention immediately to the man who opened the door. Almost before he realized what was going on his hands, behind him, were handcuffed, and a gag was placed over his mouth. "An old acquaintance," said Sam, throwing the light of his dark lantern full in his face.

The room contained a cook stove, a table, and dilapidated chairs, an old lounge, and on the table were dishes, apparently as they had been left after the last meal. The visitors were quick to see that four persons had sat at that table and to observe that they had dined on sardines, washed down by good wine, for there were sardine boxes and the wine bottles. Hermits do not live usually on such luxury.

In the room adjoining was a bed in one corner, and a high clothes-press in another corner. Pulling stockings over their boots, Sam and the two strangers

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went up stairs, but as they expected, there was only rubbish, cobwebs and dust. They came down quickly and began a thorough search for an "inner door that led somewhere." They examined every foot of the floor and the wall opposite the entrance, but found nothing. They turned now to the old clothes-press. It was black with smoke and age. At last certain marks on the side led them to exchange glances, and to renew examination.

Ha! On the top of the desk, easily found because the dust was removed by the hand, was a push button. Pressing on this, and pushing on the end side of the clothes-press, this end or door gave way and opened inward. Behind this clothes-press was a narrow door made in the side of the house. It was a heavy oak door studded with nails and bolts, and fortunately the key was in the lock. Everything is in readiness, the bolt slides back, the latch lifts, the door swings in, and with raised revolvers Sam and his friends enter. What a sight! a brilliantly lighted room, or rather a cave made by excavating. The earth thus removed filling the cellar under the house. Benches were ranged along the sides, and on them and disposed around the cave were the tools and machinery employed by counterfeiters. Two men in their shirt sleeves, wearing work aprons were at work. A revolver covered each, and thus guarded they were quietly handcuffed. Resistance was useless. They knew the character of the men they were dealing with.

The prisoners were conducted to the front room—the bed room—and provided with mouth muzzles, for the evening's exercises were not yet concluded. Quitly they waited. About midnight came the three knocks and the two knocks on the door. Sam opened it to the length of the chain. "All right," said a voice, and the door was unchained, and the old hermit and a man with him, both carrying heavy satchels, walked in. The light was dim and before the door closed the hermit and his companion were overpowered and chained. They were surprised, and still more surprised when, let into the next room they saw, in a better light, their friends in durance.

In the glare of the lantern they examined the hermit. His beard and goggles came off easily. Sam and his friends laughed when they saw him. He was about forty years of age, a dark, sharp faced, determined man of medium stature.

"You may laugh," he hissed, "but it took you several years to find us out, smart as you are."

It had been arranged beforehand that if the capture were successful and conveyance was required a lantern should be displayed on High Peak, near the hermit's house, in response to which Allan Mayne and the hired man should harness and drive at once to the mountain. A team was required to carry the machinery of the counterfeiters to the cars, to the morning train. There was a wagon load of stuff, much base coin that looked as good as genuine. Two men guarded the prisoners, and the others removed the proofs of guilt. The two satchels brought by the late comers were opened. One contained food—chiefly canned meats—and the other bars of metal to be made into spurious coin. Chained together the five criminals were conducted to Little Hoosack Station, and departed as soon as the morning train arrived. Two days later Sam May appeared again, and sitting before the crackling logs in the big room of the Mayne mansion told his story.

"My name is Walter Hamilton, and I am a detective. You may not know that well-known criminals are watched more or less, even if there be apparently no occasion to suspect them of new crimes. It is true also that criminals work in gangs, so that often, not always, if we know what one of the gang is doing we may have a clue to what the others are doing. About two years ago counterfeit coin began to appear in abundance. Some of this was traced to a member of a certatn gang of criminals. That man was convicted and is now serving out his time.

"But we knew at the time that this man was only one of several engaged in the same business, and I, with

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others, was given the matter to investigate. I turned my attention to the men who had been pals of the man sent to jail. Meanwhile counterfeit coin came as usual, and doubtless from the same source as before, but there was no clue. At last I discovered that the members of the gang were going and coming by the railway that takes the traveler to Little Hoosack. I traveled in a dozen different disguises on this railway and one day dressed as an aged, grey-bearded farmer, sat in the same seat with one of the criminals and talked with him. He left the train at little Hoosack. In this way the place of operations was located—somewhere around Hoosack.

"I had been going back and forth so much that I was afraid I should be recognized, therefore another detective came to Hoosack last spring ostensibly to sell trees, but really to look around. He did not stay long. As soon as he saw the hermit he thought he had a clue. I shaved off my full beard, and in a very ordinary suit came up here to stay until something could be determined. The man who sold trees said that 'Squire Mayne was a good man, had a large house, room enough, and that I'd better apply to him for work. I did not wish to be known as a boarder in the town, for suspicion might be directed against a man who had nothing to do.

"I began to walk abroad o' nights at once. I found a short way of going to the hermit's. Many a time, concealed within a few feet of the door, I have seen the rascals go in with their bags and satchels. And after they had gone in I have crept up to one side of the house and listened. Not a sound, except a distant or muffled sound. I knew they had retired to some place very near, and when I saw that the cellar was full of earth I imagined where that place was.

"You remember, John, the day we went a fishing. The man we met in the woods was one of them. He was on his way to the Hermits. He knew that his pals were coming up that path, and hence he was in great haste to get away from us to warm them. I knew him at once and I held back and held my face down, for although my beard was gone and my dress was different, yet even then I did not want to trust myself face to face with a man as sharp as he was. We saw the men coming up the path. They had some complicated tools with them. They were put off the train 'way down at Hedgetown by a farmer-like man. From there they came in a wagon to the mountain, but while making the ascent an axle was broken and the tools left where the accident occurred. That is the history of the broken wagon found on the pike and the history of the stray horse that at last found its way back to the owners.

"You remember the man who joined us while fishing. He was another of the gang. He came around to learn if we had discovered anything, to learn if the appearance of the other had aroused our suspicions. I moved away from him quick. I did not come home that night. I followed that fellow straight to the Hermits. You wondered that I carried a revolver. Every one of the gang was armed, and any one of them that knew me would not hesitate to fire if they found me alone.

"As for the old Hermit, he was a hardened criminal, and has been in jail off and on since he was fifteen years old. The night we took them away, I learned from one of them that three different men had played the rôle of Hermit, but most of the time the part was acted by the same one, the hardest criminal of the lot. Another thing, I believe the petty thieving carried on during the fall—the robbing of hen roosts, etc., was done by members of the gang for recreation and to supply food.

"Of course after Mr. Mayne found out that I was away nights, he wanted to know what I was doing. I don't blame him. He had a right to know, and I told, and well did he keep the secret, and more, stood up for me when the rest were inclined to criticise me. He has my warmest thanks. On many a night have I laid within four or five feet of the door of the Hermit's house and listened, and watched, and often I

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crept up to the door—all around the house, on my hands and knees sometime. In this way I located the back room, or cave, and discovered, also, that all who were admitted knocked three times slowly and twice quickly. I learned, also, that the house was rarely left alone, at least that was the appearance. Another thing I found that usually some one arrived at the Hermit's house on Saturday evening, that the hermit went to meet whoever came, and to help bring up materials. Therefore it was necessary that I should adopt the garb and mien of the Hermit in order to be admitted noiselessly, if possible, that the workers in the cave, if there should prove to be any, might not be disturbed. It worked well, and you know the rest."

"That's the story," continued Sam, no matter—"but I am tired of a detective's life. It's too dangerous, too feverish to be comfortable—"

"What business will you take up?" asked John.

That's—that's a secret for the present but I think of marrying, and—"

"Whom will you marry?"

"That's a secret, too, I shan't tell you."

Then they all laughed, and looked toward Mabel, who, with flaming face, bent low over her crochet work.

* * * * * * *

Evidently the people of Hoosack were all on the same errand, all hurrying on foot and in sleighs to the Mayne mansion. All in holiday, Sunday attire. All jolly and happy. The time has come. The clergyman is ready, and Stanhope and Mary Mayne and John and Maud Stanhope stand before him. He has been instructed to say: "Are there others who wish to be joined in holy matrimony at this time?" Yes, Walter Hamilton and Mabel Mayne stand forth hand in hand. This was a great surprise to the Hoosackers, but it made the occasion all the more interesting. The ceremony is over. Allan salutes all the bride's, and then snatches his cap and runs away to the cottage for there the reception is to be held, and he is to be master of ceremonies.

The cottage refitted and furnished throughout is fit for princes, and princes and princesses are going to live in it. In the dining room the table is set, and in the center is a large wedding cake, or three cakes in one, and this quaint piece of cookery was in the form of a bee-hive—the old-fashioned hive made of twisted bands of straw. What more proper!

We leave them here. The schoolmaster and his bride make their home in one-half of the cottage, and the farmer detective and his bride are at home in the other half, and John and his bride remain under the paternal roof. Happiness and prosperity attend them in the industry they have chosen—in the industry that has already brought them so much—in the industry that makes for man and women, to a high and noble calling—the industry of bee-keeping.

THE END.

For the Bee-Keepers' Magazine.

MOLLY HEATH'S VENTURE.

A Serial Story.

BY JULIA ALLYN.

(Continued.)

It is Saturday morning and the Heath family are gathered on the porch planning for a busy day.

During the last two weeks Rob and Tom have spent most of their spare time in a little room in the carriage house which forms a part of the trim little stable at the rear of the south end of the cottage. Their mother has allowed them to use this little room as a work shop, for as the children's pony and dog-cart, and one carry-all and express wagon do not require much space to accommodate them, the small harness room can well be spared, and the boys have fitted it up with a work bench and tool chests, and with the materials sent by their uncle, have been employed making frames and putting together surplus boxes for the new hives.

The frames they have also wired with very fine wire, and to assist the bees in their work, have fastened into these frames strips of foundation.

They have also prepared a hiving-box

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about eight inches square by sixteen inches deep, with one end closed and the other opened, and fastened to a long strong pole, and obtained two or three other poles of different lengths with a hook on the end of each.

These they will require should the bees in swarming cluster on a high branch of a tree, the hooked poles being used to jar the limbs and shake the swarm into the box.

Adjoining the kitchen is a little room built originally for a little milk-room, and which was used as such, when the Heath's owned the neighboring acres and kept two or three cows, but for sometime it has not been used and the children have been allowed to appropriate it for bee purposes.

Here, at Molly's direction, the boys have brought a long, broad table which extends the whole length of one side of the room, and on the other side have placed a large safe with fine wire doors which can be closed securely, and is to be used for storing away the surplus honey, that it may be kept free from dust, and safe from any robber bees that may be foraging for stolen sweets.

The new hives have already been arranged in a row, at a little distance back of the original six hives, and now the boys feel quite well prepared for the swarming business.

"Now, Molly, there is no school to-day, and we want to help you divide the hives," said Rob. "You promised us if that first hive did not swarm by to-day you would divide it as you thought the queen was about ready to come out. But look, it seems as if a great many bees were gathering about that very hive, see how they are flying from all quarters, back and forth, the air seems full of bees, and what a peculiarly loud, sharp hum they make. I do believe it's a real smarm," said Tom.

"Yes indeed, boys," said Molly. "Get your gloves and veils on as soon as you can, we must not let them escape us. Now Nan, you watch and see where the bees go if they cluster, while the boys and I go to the bee room and get the things we need. Teddy, you run into the house and get a sheet, and we will see how nicely we can hive this first swarm."

"Shall I beat on a tin pan and ring a bell, Molly?" asked Teddy. "You said they sometimes used to do that and I would like to help in that way."

"No doubt you would, just like a boy, always eager for noise. Well, beat away, and we will see if it has any effect on the bees. I don't think it will do any harm, although now-a-days we do not believe that loud sounds effect them much," said Molly.

"Oh, see, they are going to cluster on the low branch of that cherry tree, very near one of the new hives. Now what must we do?" asked Rob.

"You and Tom must move the hive along and place it underneath them, a little back of them, if possible, so that the alighting board we will place in front will be just below them, I will spread the sheet over the board. Now Rob you can shake the limb. That was well done, see they have fallen on the sheet directly in front of the hive. Now let us watch them. They are commencing to go in. Do you see the queen anywhere? There, I think that is she. They are crowding about her. You put in this new hive some frames with honey and brood-comb, did you not Tom? Now if the queen has gone in, which I think she has, the bees will commenee feeding her and quickly settle to the duties of housekeeping in their new quarters," said Molly.

"What will they do if the queen is not there?" asked Nan.

"They may come out again so you had better watch and see whether the others go in," answered Molly.

"Why do they go in so readily and quietly? I thought we would have a great deal more trouble with them," said Tom.

"Their instinct seems to lead them to seek any sort of cavity near at hand, and so they accept with readiness any shelter we offer them. This is the case almost always with Italian bees," answered Molly. "But now boys, let us leave Nan to watch and we will go and examine the old hive and some of the others which I thought a few days ago

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when I looked at them, would need soon to be divided."

"Why, what a number of bees are left in the old hive!" exclaims Tom, I thought we would find it almost empty when I saw so many going into the new hive."

"No, we have quite a strong colony left and we can take out some of these surplus pound boxes which are full of honey, and put in others so as to give them room to work in. There are certainly a dozen all capped over. Let me brush the bees off carefully. There Tom, take them and put them in the safe, and be sure and close the doors so that no stray robber bee can find them. Now I will look for the queen bee. I do not find her anywhere. She must have gone with the swarm. Here is the comb with the queen cells, one already to hatch out. I will take the others away so there will be no danger of this queen's being killed. Now we will put in some empty surplus boxes and leave the bees to take care of themselves for the present."

"How do you know when the queen cells are about to hatch?" asked Rob.

"The bees show us," answered Molly.

"About a day or two before it is time for the queen to come out the bees tear off the end of the long thimble-like cell in which queen is imprisoned, and leave only a thin partition for her to break through. Sometimes, about the fifteenth day, if you hold up the cell in a strong light you can see the queen moving about, and the day she emerges you can see the points of her sharp mandibles as she cuts her way out. She turns her body 'round and 'round as she does this, and the line she forms is apparently a true circle.

"Well let us leave hive number one and look at number two. Take care, Tom, you must keep back of the hive if you want to work in safety. Now Rob, use the smoker a little when Tom has lifted off the top part containing the surplus boxes. This colony has done quite well, too, but we will not take out any honey now. First let us look for queen cells. Yes, there are some forming, but probably there will not be a swarm here for a week or two. There is the queen now. Rob get me a cage, you know what it is, a narrow wire cage about three inches long. I will catch the queen in it and take her into the house and clip one of her large wings, and then when the bees swarm she cannot fly away, and we will be sure to save the swarm. There, I have her, and I will imprison two or three of her subjects with her. Now come into the work-shop and get me a pair of small sharp pointed scissors and I will let her come out on the window pane, and while the other bees are feeding her you will see how carefully and quickly I work. There now, Madam Queen, you are clipped, and we can find you easily when we want you. Now we will put her back again and feel easy about this hive.

"Now comes hive number three. Only a very little honey here. What is the matter? Here are queen cells forming. Do you suppose the colony is queenless? Where the queen dies or is lost the bees do not work as well. I will hunt for the queen, or better, I will look first to see if any eggs have been laid lately. Here in the brood-comb I find the larvæ in different stages of development, but no recently laid eggs. Now let us hunt for the queen bee. No, I cannot find her. Now we must either introduce a new queen or wait for the queen cells to hatch, which from present appearance they will not do, for a week. That is too bad, for during the busy season they need a queen more than at any other time in the year, for the worker bees die off faster then," said Molly.

"Well, why cannot we take the queen cell which was about to hatch, which we took out of the first hive and put it in this one?" asked Rob.

"So we can," said Molly, "I am glad you thought of it. Bring it to me and I will fasten it to the comb with a bit of fine wire. There, we will try it and see if it will be successful."

"Now for hive number four. They have commenced to work in the surplus boxes, but if we find the queen all right and no prospect of swarming, we will not disturb them. Yes, everything is going on well here. We will look

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at colony number five. Oh, boys, just look; most of the surplus boxes are full and capped over. What a honey harvest for us, and most of it must be apple-blossom honey. Now make haste and bring some empty surplus boxes and put the full ones carefully away. Nan, you go too, and see that the doors of the safe are closed securely. The bees in the new hive are all right, are they not? Yes, they seem to be going in and out as if nothing unusual had happened.

"Now Rob, I want to examine the lower part of the hive. What a sight! This is the largest colony I ever saw. We will divide it at once. It would certainly have swarmed in a day or two. It may still do so even if we divide it. Now, Tom, you can prepare another new hive just as we did the first, only leave room for six frames in the centre, for I will take out six frames covered with bees from this one to place in it. One of these frames has queen cells already formed on it. See, one of them is almost ready to hatch. We will put these in hive number eight, and leave them for the bees to take care of."

"Here is the queen we must leave with the number five colony, and watch it closely, for it may decide to swarm, as it is a very strong colony still."

"Now for hive number six, and the last. Yes, they are doing well too. Not very much surplus honey, but the frames in the lower part must contain forty pounds of honey, which by and by we can extract. This colony is not as large as the last, but quite strong, nevertheless. The queen is here, and everything, as far as we can see, is all right. Now boys, we have done a good day's work."

"Not tired, Teddy? You think it is fun! Oh, you are thinking of muffins and honey in store for you. Well, little man, you shall have your longing for sweets satisfied. Now let us go and rest after our labors," said Molly.

(To be Continued.)

Editor Bee-Keepers' Magazine:

I like your MAGAZINE so well that I do not want to be without it.

Brantford, Conn. JAMES R. HOWELL.

New York State Bee-Keepers' Association.

The nineteenth annual convention of the New York State Bee-keepers' Association opened in room B, Bagg's hotel, in the city yesterday afternoon. The association was founded by Moses Quimby in 1868, and has a membership of about 170. Its officers are W. E. Clark, President; Ira Barber, Vice-President; George H. Knickerbocker, Secretary; J. L. Scofield, Treasurer.

Among those present were W. E. Clark, Oriskany; John Aspinwall, Barrytown; Russell Kilbourn, Jr., Clinton; C. G. Dickinson, South Oxford; W. H. Beach, Cortland; W. C. Perry, New London; W. A. Winter, Utica; R. L. Crocker, Lockport; F. H. Stoddard, W. O. Stoddard, Middleville; Arthur B. Thomas, Utica, W. L. Coggeshall, West Groton; C. H. Knickerbocker, Pine Plains; A. I. Root, Medina, O.; C. H. Killmer, New York. Many more are expected.

The meeting was called to order at 2:15 P.M., by President Clark, who said that it was fitting that the convention should be opened with prayer. He accordingly introduced Rev. F. H. Beck, pastor of the Court Street M. E. Church, who invoked the divine blessing on the deliberations of the association.

The minutes of the last previous session were then read and approved.

At the meeting last year the report of the committee on exhibits were referred back for correction. The revised report was next considered, accepted and placed on file.

Secretary Knickerbocker stated that he had but little data for preparing a report. When he took charge of the books two years ago he found that there had been no record kept from 1875 up to that time, save the list of members in attendance at the meetings. The secretary stated that he had expended for printing and stationary $5.50. He thought the association needed more thorough organization. The report was accepted and placed on file.

As most of the members of the committee appointed on constitution at the

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previous meeting were present, it was decided to defer the report until later in the meeting.

ARTIFICIAL PASTURAGE.

The topic for discussion for the afternoon was, "Does it pay to cultivate plants especially for honey?"

C. G. Dickinson of South Oxford said he did not think it worth while to cover farming lands with weeds for the use of bees.

A. I. Root of Medina, O., publisher of *Gleanings and Bee Culture*, said he had recently attended the convention of the North American Bee-keepers in Chicago; the Michigan State Bee-keepers' Convention in East Saginaw, and the Ohio State Bee-keepers Convention in Columbus, and had heard the question thoroughly discussed. He had had considerable experience of his own in cultivating plants for honey. He had raised catnip, but it required too many plants to make a satisfactory showing, and the same was true of mignonet Mr. Chapman of Versailles thinks the globe thistle, (*echinops spherocephalus*,) is a paying plant to cultivate, and has experimented on an extensive scale. The speaker continuing his remarks said: The plant is a very promising one for honey, still I am not satisfied that it pays to go to the expense that Mr. Chapman has to cultivate it. He claims to have raised two tons of honey from this plant, but we who examined his samples at the exhibitions, pronounced it basswood honey. The land Mr. Chapman devoted to honey would probably have paid as well or better had it been used to grow cabbage or strawberries. I once had forty colonies of bees that worked on a field of buckwheat two miles away. and I regard that the best showing of artificial pasturage I ever saw. Buckwheat honey is dark however, and the yield is regular. We get good effects from alsike clover. The crop pays well for the hay and the seed, aside from the honey. We call the clover honey gilt edge. The cultivation of rape is carried on in places for its seed, and we get good effects from the plant in the way of honey. The raspberry is cultivated for its fruit as well as for honey. I have spent $1,000 in cultivating plants especially for honey, but never got my money back. I tried the spider plant, but unsuccessfully. The new Japanese buckwheat is making quite a breeze among honey makers now.

Some of our customers last year raised as high as 50 bushels to an acre. Small packages of the seed were sent to bee-keepers all over the United States last year.

John Aspinwall of Barrytown, in speaking of the tulip tree, said that in passing under a tree one day he pulled down a blossom and it was filled with honey. All of the blossoms were covered with honey and there were myriads of bees there, many dead from an abundance of honey. There had been no rain for several days.

Mr. Root—Most plants fail of producing honey some seasons, but there is seldom a season when our bees do not get a supply of honey from some source.

Mr. Dickinson—My experience is that the supply of honey depends largely on climatic conditions at all times. In my opinion, any one who plants anything for honey alone will get left. When clover yields honey, it is of a fine quality. In my experience, when you find bees working on white clover, you find them on the red. Buckwheat is simply buckwheat, and nothing more, and as far as the Japanese or other varieties are concerned, I cannot see that one is better than another. Raspberries produce a large amount of honey, and if I had to take my choice between this plant and the clover I would take the former. My bees work on red, white or alsike clover. I never should encumber farming lands with weeds of any kind for the sake of trying to raise honey.

Mr. Aspinwall—The introduction of weeds is to utilize waste places, but I do not believe in using cultivated lands for this purpose.

B. E. Foster, Utica—We got about 40 pounds of honey from artificial pasturage this year, but I do not think it pays. I have kept bees twelve years

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and never knew them to gather two pounds of honey from buckwheat.

Secretary Knickerbocker—Some of my colonies have gathered ten pounds of honey from buckwheat per day. Another year we had eight acres of buckwheat and I don't think all our bees gathered two pounds of honey from it.

Mr. Root—The basswood tree is valuable for bees, and I have planted 4,000 trees on ten acres. They may not pay for bees, but I think they will for timber.

Mr. Dickinson — Some years the basswood blossoms freely but yields no honey. This may not occur once in ten years, but you will find it so sometimes. The supply of honey depends on climatic conditons. It is driven back sometimes, as is the sap in a tree, by cold weather.

Mr. Foster—Should we not use the word linden instead of basswood?

Mr. Root—In some localities one term is preferred, and in other places another.

Mr. Dickinson—Let us talk and speak United States. Linden is a German term.

J. H. Taylor, Ilion—There is a great difference in the locality as regards the quantity of honey produced. This year the bees failed to get honey from buckwheat near Ilion, but later at Jordanville the same bees, when I took them there, worked in the plant freely. I find that they will gather honey from buckwheat on the hills when they will not in the Mohawk valley.

Mr Aspinwall—I move that it be the sense of this meeting that it does not pay to raise plants for honey.

Mr. Dickinson moved, by way of amendment, that it was the sense of the meeting that it does not pay to encumber cultivated lands with weeds for the sake of honey. The amendment was accepted by Mr. Aspinwall, and the motion carried.

MISCELLANEOUS TOPICS.

Miscellaneous topics for discussion were then declared in order.

Mr. Aspinwall—It seems to me it has been proved this year that there is something else than climatic changes that effect the yield of honey. The conditions were apparently favorable for producing honey, but the yield was light.

President Clark—My experience with buckwheat has been that fifteen years ago I got a good yield, but since that time I have not been able to get a good yield from that source. I presume my bees get a little buckwheat honey but consume it.

Mr. Dickinson—I. L. Scofield has had an apiary at Chenango Bridge in a buckwheat country, and where he once had a large yield of honey he now gets but little. Bees work very little after midday. If the night has been warm and a fall of dew follows, the conditions are favorable for the bees.

Mr. Root—We are satisfied that buckwheat is worth a good deal for brood combs if not for honey.

Mr. Dickinson—How can you distinguish buckwheat honey late in the fall from that from other sources.

Mr. Root—From the odor.

Mr. Aspinwall—The demand for buckwheat honey in our part of the state is greater than for clover honey.

Mr. Knickerbocker—It seems to me you can work up a trade on almost any kind of honey. It is the way the people are educated.

Mr. Dickinson—We prefer the buckwheat honey in our family to any other.

Mr. Knickerbocker—The bees in our section did not work on the basswood trees in 1886, but last year they did.

Mr. Root—How many have succeeded in increasing the yield of honey by moving their bees from one place to another?

Mr. Taylor related an instance where bees had been moved two miles and they had worked much better.

Mr. Root spoke of an instance where bees had worked on buckwheat in the afternoon.

Mr. Dickinson—Can any one report a yield from sumach?

Mr. Knickerbocker—Mr. Jackson of Deposit says he gets a good yield of honey from sumach every year. We have a little in our place and it yields very well.

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Mr. Taylor—The bees work on the red sumach in our locality very nicely.

Mr. Foster—It would be a good idea for us to bring different samples of honey when we meet.

Mr. Dickinson—There is a topic for discusion. It is difficult. I claim, to get a sample of pure basswood honey. Milkweed produces excellent honey and is often mixed with basswood. The golden rod honey is also mixed with the latter honey. In the spring the raspberry and clover honeys are mixed.

John Aspinwall—It is very difficult to obtain one kind of honey alone. The principal kinds on the market are called clover and buckwheat.

Mr. Root—We are in the habit of selling honey with basswood flavor at a cent a pound less than the clover.

Mr. Dickinson—If this is a fact, do we not make a mistake in having so many flavors? There are three distinctive kinds, buckwkeat, basswood and clover, known to the trade, and I think it would be better to leave the matter right there.

Mr. Root—The raspberry honey has a peculiar flavor, and there is a difference between the white and alsike clover honey. The red clover honey, also has a distinguishing taste. The color, flavor and consistency are taken into consideration.

Mr. Foster—I have seen a grade of honey said to have been made wholly of apple blossoms.

Mr. Dickinson — The amount of prussic acid in fruit tree blossoms is enough to give the honey a distinct flavor, but in Chenango County I don't see how it is possible to distinguish honey made from white, red and alsike clovers. The bumble bee flavor you speak of I think is due in the pollen taken up by the bees. Three years ago the bees were working for business on white daisies, and you could track them all around.

N. N. Bettsinger of Marcellus—Name light colored honey white honey, and let it go at that. There should be but two grades, light and dark. I never knew alsike clover to predominate in a district unless there was plenty of white, and I can not tell the difference between honey made from the two varieties.

C. H. Killmer, manager of the honey department in Thurber, Whyland & Co.'s establishment, New York, said that honey ought to be sold in sections that weigh a little less than one and two pounds each. It should be labeled "pure white" and "buckwheat," and graded A, B and C.

Mr. Dickinson—If a dealer buys twelve two pound packages he wants them to weigh a little less than twenty-four pounds rather than more; for when he comes to sell them by the box he will lose on the heavy packages.

Mr. Root—We do not wish to give short weight to our packages, and, if the honey is put up in packages to sell for a dime each, it would simplify things.

Mr. Dickinson—If a retailer can buy a crate of packages containing twenty-three pounds, he can sell them out at so much a piece, and I don't see where there is anything illegitimate about that.

Mr. Foster—It is impossible to put up a crate of packages where all weigh exactly alike. We want to use both one and two pound packages.

Mr. Bettsinger — Pound packages sell for more than the others, and more rapidly. Now why should we use the two pound packages at all?

Mr. Dickinson—An apiarist can get more honey in a two pound package than in two ones. Then there is the glass, and there is more finishing on the two-pound packages, and I claim that they are more profitable to the apiarist.

Mr. Root—Some bee-keepers claim that they can get one-fourth more in a large brood frame than they can in two small ones.

President Clark—There is fully two cents a pound difference in the one and two pound packages. It takes the bees just as long to finish up a one pound section as it does a two pound.

Mr. Dickinson—I have used twenty-eight one pound sections and two rows, making fifty-six on a hive. I have also used two pound sections in

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two rows of forty-two in each, making eighty-four pounds in a hive, and have noticed that the latter sections were filled by the bees about as soon as the smaller ones.

Mr. Bettsinger—The advantage of the larger sections was that the bees could use their extra heat. The larger the package the greater amount of honey until you reach the capacity of your colony.

Mr. Winter inquired if Mr. Dickinson had any experience with the open cells.

Mr. Dickinson—If you can tell how you call fill outside cells, the difference will be considerable. Sections should be about 1 ¾ inches in thickness.

Mr. Winters—We have no trouble in getting our sections filled, whether their sides are opened or closed.

A brief discussion, on foundations for combs in sections, followed. The sentiment was in favor of having the sections fastened on the sides.

Mr. Root said that the sections were soiled less where modern separators were used.

Mr. Bettsinger used tin and wood separators side by side for years, and he found that the honey was whiter where the wooden ones were used. The wire cloth is still better.

Mr. Dickinson—The bees will not go to work as early in the day where a tin separator is used as they will where it is of wood.

A recess was then taken until 7 o'clock.

Evening Session.

USES OF FOUNDATION.

In the evening the association convened shortly after 7 o'clock. The first thing on the programme was the receiving of members.

The topic of discussion was "Does it pay to use full sheets of foundation in the brood chamber?"

Mr. Root spoke briefly on the subject and said in Michigan perforated zinc is used extensively. The speaker told of the experience of Messrs. Hutchinson, Boardman and others in the use of the foundations.

W. L. Coggeshall thought it paid to use the foundation.

Mr. Foster said he had always used full sheets, and his bees never go into winter quarters with over fifteen or twenty pounds of honey.

Mr. Bettsinger said that the foundations had been used a long time. For extracted honey full sheets of foundation should be used.

Secretary Knickerbocker thought locality had a good deal to do with the matter, and in this connection read an extract from a letter from Ira Barber. Mr. Barber was strongly in favor of using the foundation. He had a good crop of honey this year, whereas his neighbors had scarcely enough to keep their bees. Mr. Knickerbocker said he used the Quimby standing frames and with good effect. Taking the average of the season right through he would not do without the foundation if it cost a dollar a pound.

Mr. Aspinwall—In Cuba they use full sheets, but of course they work only for extracted honey.

R. L. Crocker—I have hived some swarms for full sheet, some on empty combs and some without any. Those that made the most were hived on empty frames. I found no pollen until the third box, but that was covered with it. The bees were hived in the alsike clover season. I had nearly thirty acres of this clover which blossoms some ten days before the white. I use the Quimby hive, but have perhaps forty Headen hives, from which I have had good results.

Mr. Aspinwall—Does not the value of the foundation depend on the weight? Is not that of six or eight feet to the pound the best?

Secretary Knickerbocker—Some of the most successful honey producers of the State, L. C. Root for one, prefer that of four feet to the pound to be used without wire, but I prefer lighter.

Mr. Foster—Can the foundation be so used as to prevent drone comb?

Secretary Knickerbocker—I have had the bees tear down the side walls and work over the drone comb.

President Clark—Were the broods that Mr. Crocker hived on empty

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frames in as good condition when winter came as others?

Mr. Crocker—They were not, for they had no honey left.

The prevailing opinion seemed to be that full sheets of foundation should be used in the brood chamber.

Miscellaneous topics were then discussed.

FOOD FOR BEES.

Secretary Knickerbocker said he once fed sixty-six colonies of bees sugar syrup during the winter and had only one left in the spring.

A. I. Root, in response to a query from the president, said he thought a pound of sugar equal to a pound of honey for supporting bees. Granulated sugar is better than honey for this purpose.

Mr. Foster—There is nothing to hinder a man from feeding his bees sugar, but they ought to be fed honey. There is nothing to hinder bees taking sugar into the sections. I believe bees carry sugar and syrup into their cells and cell it over. I have stopped using sugar for keeping bees. California honey is as cheap as sugar and just as good for the bees. Why not use it?

Mr. Root—I believe bee-keepers are honest as the general run of mankind and a little better than the average, if they are not angels. Mr. Hutchinson feeds his bees, and others at the convention have said they did the same thing, but there is no complaint. It does not pay to buy extracted honey at eight cents a pound even if you can get eighteen cents for the honey in the comb. I have tried sugar to see how it would work, but we all recognized that the honey made was from sugar. When broods are about to starve, however, granulated sugar can be safely and economically used to feed them. It is safer to feed sugar in the case of foul broods than to use honey. Heating honey to the boiling point for about six minutes would obviate the trouble though.

Mr. Bettsinger—Salt cures and prevents foul brood. Professor McLane has tried it successfully. I have cured the trouble in this way effectually and cheaply.

Mr. Root—Carbolic acid has been successfully tried by Mr. Cheshire. Salycilic acid had also been used to kill the germs.

Mr. Aspinwall—The starvation process, and boiling the hives, is the most successful method of killing the germs.

Mr. Root—We use salt and water very freely in the front of our hives.

None of the keepers present reported the existence of foul broods in their localities.

ADULTERATED HONEY.

Secretary Knickerbocker—It seems to me a detriment to bee-keepers that sugar has ever been mentioned in connection with bee-keeping.

Mr. Aspinwall—The question of adulterating honey has been dropped entirely. I have not seen anything in the New York stores that looked at all suspicious. I don't think there is any adulterated honey on the market to-day.

Mr. Root—There is a standing offer of $1,000 for a comb of artificial manufactured honey.

Mr. Aspinwall—I will give a thousand dollars for a square inch of it that cannot be told from that made by the bees.

Mr. Foster—If it is a losing matter to feed sugar to bees to put into sections, why is it not a losing operation to feed it to them through the winter?

Mr. Root—Simply because it is better for the bees.

Mr. Aspinwall—I think the sense of the association is that it is ill advised to feed sugar to bees if there is any possible chance of the honey getting on to the market.

Mr. Kilbourn—My bees want 500 pounds of something to winter on. I think I can secure the necessary quantity of sugar or syrup for twenty dollars, whereas the honey would cost forty dollars. As a matter of business, I think we have a right to use sugar for wintering the bees.

Mr. Bettsinger—Syrup will cost five cents a pound. Does anyone want to take what honey I have left next season.

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after I have sold what I want to and allow me five cents a pound? I think not. Therefore, taking honey away and feeding sugar instead is not advisable.

Mr. Foster—That is what it is coming to unless something is done.

Mr. Root—It is a long time since bee-keepers' journals advocated this way of doing business.

President Clark—There are some people whom you can hardly induce to believe that extracted honey is pure.

Mr. Root—Some persons prefer the extracted honey in a candied condition.

An extract from the *American Grocer* was read in which it was stated that in New Jersey forty-two samples of bottled honey were analyzed and it was ascertained that out of thirty-one samples put up by packing houses only six were pure. The samples purchased of farmers, however, were all pure.

Mr. Root—I fear there is a mistake about some of those samples examined. The state chemist of Ohio says it is a difficult matter to tell when honey is adulterated. Bees gather every variety of honey.

Mr. Aspinwall—With the polariscope you can detect the presence of five per cent. of glucose. A point in the article just read is that, whereas the honey procured of dealers was nearly all found to be adulterated, that purchased of bee-keepers was all pure. There is a law against adulterating honey, and can not we induce the state chemist to analyze honey sold on the market? I back down from my position taken in regard to the honey sold in New York, for I may have seen adulterated honey there and not have recognized it. I think this showing in the *American Grocer* is the worst I ever saw. The honey sold by commission men, though, is generally pure.

OTHER TOPICS.

Mr. Aspinwall—The government has recently granted a patent for making an article taste like maple sugar by introducing a decoction of hickory bark.

The question of "Artificial Fertilization" was on the programme for discussion, but Professor N. W. McLain of Aurora, Ill., who was to lead it, was unable to be present owing to illness. A letter from the professor was read expressing regrets at his inability to be there. The discussion was deferred until next day.

Mr. Aspinwall inquired if the subject of bee-keeping had been taken up by Professor Comstock of Cornell university, He received an affirmative answer.

Mr. Aspinwall, continuing the talk on the miscellaneous topics, said: "When a bee has lost its hair on its thorax it is diseased, and the malady is termed bacillus decapillis. There are isolated cases in many colonies, but the disease does not spread."

Mr. Root—In the nameless bee disease the members of the colony become weak, have shiny backs and many die. New queens have to be introduced.

Mr. Aspinwall—The introduction of new queens is a great secret of success in bee-keeping. A queen hatched this season should never be kept over next.

At this point a recess was taken until 9 A. M. next day.

Michigan Bee-Keepers' Convention.

The Michigan State Bee-Keepers Association held its 22d annual meeting at East Saginaw, December 7th and 8th. The afternoon meeting on the 7th was a joint meeting of the State Horticultural Society and the Bee-Keepers with President George E. Hilton in the chair.

The Mayor of East Saginaw, Mr. Henry M. Youmans, delivered the addresses of welcome.

The President called on President Lyon, of the Horticultural Society to reply, which he did in his ever-ready good natured manner.

The local committee, John Rey and Dr. Whiting, had done every thing possible to make it pleasant for all in attendance, which was duly appreciated by all.

One of the leading dealers in fine groceries denoted one of his large show windows to a fine exhibit of comb and

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extracted honey. It was the wonder of many where the beautiful comb honey came from, but to those who were familiar with its neat and attractive appearance knew well that it came from the apiary of the Wilking sisters at Farwell, Michigan.

The extracted honey has the label of John Rey, and it was the expression of all, that John was a wide-awake honey producer and dealer, and it is only a matter of time when he will stand at the head of the honey dealers in Michigan. On Wednesday evening Mayor Youmans and the President of the Business Men's Association invited the members out to supper, which was held at the bazar, for the benefit of the home of the friendless. It was an enjoyable hour, and all went away well pleased with the general hospitality and courtesy extended.

The question — "Do Bees injure Maturing Fruits" was discussed at great length by the horticulturists and bee-keepers, but our space forbids a lengthy detail; suffice to say that it was conceded that bees were sometimes a trouble in gathering fruit over ripe, yet they were not known to do material damage to fruit unless in a damaged condition; then the bees would clean up the exposed juices, and in this way were a benefit, as fruit went to market in better condition.

"How does 'bee-keeping' supplement horticulture commercially?" The discussion that followed brought out some good ideas from Cook, Bingham, Taylor, Garfield, Dr. Whiting and others, and from the evidence gathered it seemed that the intelligent young farmer could make more money from the bees than from the farm, all things considered.

EVENING SESSION.

The convention was called to order at 7:30 P. M., with President Hilton in the chair. The Secretary's report was read and accepted. Then the following members paid their dues:

John Rey, East Saginaw, Mich.
Henry Jones, Chesaning, Mich.
I. S. Huckins, Bay City, Mich.
Joel Gulick, Nelson, Mich.
H. D. Cutting, Clinton, Mich.
A. J. Cook, Agricultural College, Mich.
O. J. Bedell, Kawkawlin, Mich.
R. L. Taylor, Lapeer, Mich.
Martin Gute, Owosso, Mich.
Sam. Willis, St. Charles, Mich.
W. B. Fellows, Jackson, Mich.
A. I. Root, Medina, O.
J. H. Robertson, Pewamo, Mich.
J. A. Pearce, Grand Rapids, Mich.
T. F. Bingham, Abronia, Mich.
Dr. L. C. Whiting, East Saginaw, Mich.
W. D. Soper, Jackson, Mich.
E. J. Cook, Owosso, Mich.
Geo. W. Gillett, Hemlock City, Mich.
Wm. Spedding, Clifford, Mich.
Wm. H. Barry, Shelby, Mich.
A. M. Gander, Adrian, Mich.
J. B. Wilcox, Manistee, Mich.
W. M. Freeman, Flushing, Mich.
W. Z. Hutchinson, Flint, Mich.
Geo. W. Sorter, Kingston, Mich.
Geo. E. Hilton, Fremont, Mich.
James Vere, East Saginaw, Mich.
John Vere, East Saginaw, Mich.
O. J. Hetherington, East Saginaw, Mich.

The following lady members were enrolled:

Mrs. Reinhard, East Saginaw, Mich.
Mrs. Myra L. Parsons, Linwood, Mich.
Mrs. Frank Wright, Otter Lake, Mich.
Mrs. I. S. Huckins, Bay City, Mich.
Mrs. John Rey, East Saginaw, Mich.
Mrs. O. J. Bedell, Kawkawlin, Mich.
Mrs. R. L. Taylor, Lapeer, Mich.
Miss Lucy A. Wilkins, Farwell, Mich.

The convention next listened to

The President's Address.

(See next No. of MAGAZINE.)

It was voted that the Association hold its next annual meeting at Jackson, Michigan, the time of meeting to be decided by the officers.

The election of officers resulted in the re-election of the old officers, viz: President, George E. Hilton, of Fremont; Secretary, H. D. Cutting, of Clinton; and Treasurer, M. H. Hunt, of Bell Branch.

Prof. A. J. Cook at this time delivered a lecture upon

The Anatomy of Bees.

He described the glandular system in particular. One pair of glands furnishes the saliva, and another the food for the larvæ. The drones do not have this gland, and it is only rudimentary in the queen, which shows that she once nursed the larvæ, as the queen bumble-bee now does in the spring. The change that has taken place in the

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honey-bee in this respect, is another proof of the correctness of the evolution theory. This gland is very deficient in old worker bees, which shows that nursing is not their business. It is the food furnished by these glands that the workers feed the queen. If she had to eat honey and pollen, and digest it herself, she could never lay twice her weight in eggs in one day. Another set of glands furnishes a fluid that changes the character of the nectar gathered and changes the cane-sugar to glucose. This glucose may be chemically the same as commercial glucose, but there are other tests that show it to be different.

(*To be continued.*)

CONVENTION OF THE EASTERN MICHIGAN BEE-KEEPERS' ASSOCIATION.

Annual Meeting Dec., 17th—Next Convention at Jackson.

The annual meeting of the South-Eastern Michigan Bee-keepers' Association was held in the Supervisors room of the court house at Adrian, December 15th, 1887.

FORENOON SESSION.

Meeting called to order by President Howes. The Secretary's report was read and accepted, as was also was that of the treasurer. The report of the standing committee to confer with the executive committee of the county agricultural society, was given by Mr. D. G. Edmiston, who reported that the apiarian department of the premium list, of the Agricultural Society had been placed in the control, of the association and that a fairly liberal amount had been allowed the department, which had been arranged in a suitable list for this department. Some discussions followed the report, relative to striking out the part of foot note referring to bee-hives, feeders, and queen cages and to honey being raised in the county, which resulted in a motion for a committee to be appointed to revise the premium list of the department and to make necessary arrangements with the Fair Society. It was also voted that the portion of the foot note mentioned above should be stricken out.

The committee as above mentioned is:

Mr. H. D. Cutting, Clinton, Mich.
Mr. A. M. Gander, Adrian, Mich.
Mr. D. G. Edmiston, Adrian, Mich.

The annual membership fees having been raised from 25 cents to 50 cents at the last meeting, were voted back to the former amount. The annual dues were collected and new members received, fifteen in number as follows:

H. D. Cutting, Clinton, Mich.
H. Scranton, West Toledo, Ohio.
D. G. Edmiston, Adrian, Mich.
A. D. Armstrong, Hudson, Mich.
E. Goodrich, Hudson, Mich.
Dr. Sam'l Stevenson, Morenci, Mich.
A. Combs, Morenci, Mich.
D. C. Cleghorn, Lyons, Ohio.
E. Hubbard, Fayette, Ohio.
George M. Deer, Riga, Mich.
Rufus Baker, Fairfield, Mich.
C. J. F. Howes, Adrian, Mich.
A. M. Gander, Adrian, Mich.
E. W. Allis, Adrian, Mich.
H. Barber, Adrian, Mich.

Only a partial statistical report was secured showing as follows:

Number colonies, in spring of '87, 307.

Number of colonies in fall of 1887, 377.

Number of pounds wax produced in 1887, 173.

Number of pounds comb honey produced, 2,515.

Number of pounds extracted produced, 5,405.

Total honey produced, 7,920.

Average price obtained per pound 14 cents.

Average yield per colony, spring count, 25¾ pounds.

Number of queens sold, 91.

A committee of three on exhibits was appointed and the meeting was adjourned to 1 o'clock P. M.

AFTERNOON SESSION.

Meeting called to order. President Howes in the chair. There was considerable discussion on the subject of producing both comb and extracted honey in the same apiary by Messrs.

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Edmiston, Cutting, Gander, Cleghorn, Howes and Hubbard, it being generally thought that the extractor could be used to good advantage in an apiary where comb honey was produced; but not to obtain both extracted and comb honey, from the same colony, at the same time. Mr. Edmiston gave the method practiced by W. Z. Hutchinson, of Flint, Mich., for getting the bees to work in surplus boxes and storing the honey gathered in them. Mr. Cleghorn gets the bees to enter and work in surplus chamber, by raising a frame of brood to the surplus chamber for a short time, till the bees get well at work; then remove frame and extract honey, then return frame to brood chamber.

The election of officers resulted as follows:

President, Dr. Samuel Stevenson, Morenci, Mich.

Vice-President, one for each county in the district of the Association:

Washtenaw County, Dr. C. F. Ashley, Ypsilanti.

Jackson County, Mr. F. Wilcox, Jackson.

Livingston County, F. L. Wright, Plainfield.

Hillsdale, E. Goodrich, Hudson.

Oakland County, J. J. McWhorter, South Lyons.

Lenawee, D. G. Edmiston, Adrian.

Wayne County, M. H. Hunt, Bell Branch.

Monroe County, M. Fleming, Dundee.

Secretary, A. M. Gander, Adrian.

Treasurer, D. G. Edmiston, Adrian.

The place for holding the next meeting was decided in favor of Jakson, and it was voted to meet jointly with the State society. The time for meeting of that society is to be fixed by the executive committee.

QUESTION BOX.

The question box contained several questions, as follows: "What occupation can be combined with bee-keeping and not conflict with it? What is the best method of wintering bees—In cellar or out doors? How can the marketing of honey be controlled, so as to prevent the unposted bee-keeper, from ruining the market for others?" These were discussed by Messrs. Deer, Edmiston, Cutting, Stevenson, Hubbard and other members. Mr. Deer combined poultry with bee-keeping, and found it worked very well, and he found it kept him busy, as there was plenty of work to do, but could manage them quite satisfactorily. Horticulture was found to work quite well in connection with bee-keeping, if strawberries be excluded, as they ripen at the busiest time with the bees. proper protection on the summer stand, seemed to be the preferable way for wintering, but a proper cellar was not without its advantages. Changeable weather in spring, after bees are put out, was the main objection to cellar wintering; if wintering in cellar they should be kept there as late as possible without injury to the bees (or as long as they can be kept quiet), to avoid chilling of brood by early spring changes. All agreed that protection was necessary. Mr. Edmiston and Mr. Deer spoke in favor of the Chaff hive, and that bees wintered as well or better in them as any other way. President elect Stevenson, gave his mode of preparation for winter, which was to thoroughly protect them on all sides and on top by an outer box with cover, allowing a space for dry packing material and fix them up early or before cold weather sets in. The question of marketing honey was discussed in a lively manner by several interested members.

Mr. Deer, stated that he had bought up honey that was in good condition for market, and on the market in his place, at a much less price than honey could be bought of posted bee men. He bought of store keepers at their price, and shipped to other markets at a good profit, showing that the honey was sold by the producer at a far less price than it was worth; thus his local market was rid of the surplus honey, that the unposted bee-keeper had parted with unconscious or regardless of its value, and at the same time it opened a way for his own product at something near its value. Mr. Cleg-

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horn favored the appointment of a good business man to look the markets over, and open up avenues by which the honey in the districts might be disposed of. Mr. Armstrong also favored Mr. Cleghorn's idea.

Ex-President Howes, illustrated how certain parties not posted, brought their honey to market, selling it at less than its value, and when asked why they sell at less than what it is worth, and told what can be obtained for such honey, seem surprised and want to know where they can get such prices, or its value.

He also stated that said parties will not take a bee paper and keep posted as that would cost something, and every penny saved is so much clear gain, but they go on losing dollars and tens of dollars, all for the lack of a little extra energy and to save the small sum it would cost to keep posted, yet the same thing happens year after year. The opinion seemed to prevail that those interested should use every influence possible to inform and induce such parties to keep posted.

A vote of thanks was tendered for the use of the room in court house, and for janitor's services.

Adjourned to meet at Jackson, with State Bee-Keepers Association.

A. M. GANDER, Sec'y.

North American Bee-Keepers' Society.

(*Continued.*)

N. N. Betsinger—The crates are soiled by being put on a dirty floor in some depot before shipment; then they are placed in a dirty car, from that they are loaded upon a dirty dray, and in all this handling the dirt is rubbed from one crate to another.

The convention then adjourned until 9 A. M., on Friday.

During the afternoon session of Friday Mr. R. L. Taylor, of Lapeer, Mich., read an essay upon

Wintering Bees in the Northern States.

The only thing necessary to bees in order to secure their perfect wintering, can be expressed in one word—comfort. In a climate warmer than that which reigns during winter in our Northern States, much dependence can be placed upon frequent flight to secure that happy condition, but in this latitude such flights can no longer be safely relied upon to furnish immunity from the causes of uneasiness and disease.

The catalogue of things liable to produce discomfort among the bees might be almost indefinitely extended, but after eliminating everything that seems to me of little importance, I find it is contracted to six items, viz.: 1. Untimely manipulation. 2. Moisture. 3. Improper ventilation. 4. Improper temperature. 5. Scattered or scant stores. 6. Improper food. I shall touch upon these points in the order of their arrangement, not in the order of their importance:

1. It is evident that any manipulation after the season when the bees begin to assume the semi-torpid state, tends to dissipate that disposition, and is also liable to leave crevices between the hive and its cover, which, made earlier in the season, would be closed by the bees, but being left open, will often cause an injurious circulation of air through the hive.

2. When moisture invades the cluster in such amounts that the bees are unable to expel it by their natural warmth, they are compelled to arouse themselves from their slumbers and to attempt to rid themselves of the moisture by gathering it into their stomachs. Besides other evident evils resulting, the bees will gather with the water more or less of the impurities which will go to help load their intestines; and no doubt the excessive amount of moisture taken up will have a greater or less tendency to impair digestion.

3. As this ventilation, I fear that too much rather than too little, *i. e.*, I fear a draught much more than the want of any change of air at all. A cold draught causes discomfort to most kinds of animate nature, but I have seen no indication that for breathing purposes the bees get too little change of air by any of the ordinary methods of wintering. Out-of-doors I

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give a full hive-entrance; in-doors I remove the bottom-board entirely, not for ventilation proper, but that the bees may the more readily expel moisture.

4. On account of the facts which I shall mention below, I do not attach a great importance to a nice adjustment of temperature. An improper temperature is to be dreaded, chiefly on account of the increased consumption of stores thereby induced, and the consequent increased accumulation of fecal matter in case the stores are impure. For these reasons, viz: the saving of stores and the lessened risk of disease, I hold that it pays in this climate to winter bees in the cellar. I cannot find any grounds for choice between 35° Fahr. any of the intervening points up to 50°. I do not find a high temperature an antidote to poor stores.

5. Scant stores cause the bees anxiety, and scattered the stores, activity and the two together make place for all the other untoward consequence that I have mentioned. But we all agree here.

All the above mentioned condition cause discomfort in the way and for the reasons intimated, and I mention them not because I think them ordinarily fatal, or even in themselves greatly injurious, but because they cause undue exertion and consumption of food with a result more or less detrimental, owing to the quality of the food. If successful wintering turned on any or all of these, the problem would have been solved long ago. There is no such uncertainty attached to the securing of the conditions desired in these things, as to make their operation long a matter of doubt.

No, brethren, the thing that causes uncertainty in results, is the uncertainty existing as to the quality of the winter stores, which brings me to the sixth and last item to be considered:

From my experience of ten years with an apiary ranging in numbers from 2 colonies at the beginning to 500 colonies now, I am forced to the conclusion that the great cause of our wintering troubles is a poor quality of stores. Some apiaries are, no doubt, placed where the natural stores obtained are always of a quality to be relied upon, but mine, I have no doubt, are not thus fortunate. The reasons for my conclusions, that improper food is the prime cause of our winter losses, I draw from the following facts, which are within my own experience and knowledge:

In the autumn of 1879 I had 15 colonies, and as that was a year of great scarcity I fed each colony largely of sugar syrup, and wintered them on the summer stands. In the spring a pint cup would have held all the dead bees from all the colonies.

Having purchased a few colonies in the spring of 1880, I began the disastrous winter of 1880–81 with 60 colonies; to 30 of these I fed a limited amount of sugar syrup, and of these 16 survived; of the 30 colonies not fed, 3 survived.

For the present I pass over the next three winters, to the still more disastrous winter of 1884–85, only saying that during the fall of 1883, as an experiment, I supplied a few colonies with sugar stores, and those thus prepared wintered so much better than those having honey stores, that in the autumn of 1884 I gave all my 200 colonies empty combs, and fed them syrup. The result was, that while all the other bees with but few exceptions in that part of Michigan perished, there was not a colony of mine in a normal condition, but so far as I could judge, wintered perfectly. These bees were wintered in a cellar.

During the following winter my loss was about 12 per cent. of bees managed in every way precisely the same, except that their stores were partly honey and partly syrup, and this though the winter was much more favorable for the sucessful wintering of bees.

During the next winter, that of 1886–87, I had in two cellars at home nearly 400 colonies. Of these about two-thirds had honey stores exclusively, but the other third being in single sections of the new Heddon hive, were almost destitute of honey, and consequently were supplied with

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stores of sugar syrup. Each kind was divided between the two cellars. The the temperature of one cellar was kept at 50° Fahr., almost without variation, while that of the other varied form 35° to 45, but this difference in the temperature seemed to have little effect on the condition of the bees—if there was any difference it was in favor of the lower temperature.

But what a marked difference was there in each cellar, between the colonies with sugar stores and those with natural stores! Of the former the bees were the picture of comfort and contentment, quiet, closely clustered, not a diarrhetic sign, and only now and then a dead bee dropping out of the cluster. Of the latter the bees were uneasy, not closely clustered, easily disturbed, dying by the thousand, and many of the hives bearing the unmistakable signs of disease, and, as I have said, if there was any difference, those in the cellar with the rather high, even temperature suffered the more.

One fact more: During the three winters from 1881 to 1884, which I have mentioned above, I wintered my bees in the same cellar on natural stores, under precisely the same external conditions, so far as it was possible for me to Judge; yet the first winter they wintered perfectly, while the other two winters they wintered illy, and with considerable loss. I cannot account for this, unless there was a difference in the stores.

Outside of my own experience there is one thing I do not fail to remember, and that is, that there is little agreement, and apparently little prospect of agreement, among bee-keepers, as to the necessity or the methods of securing ventilation, a high temperature, a dry atmosphere, late brood rearing, or even as to the necessity of cellar wintering; but they are in practical accord in affirming the necessity of supplying bees for winter with stores of good quality. This is a significant fact. Stick a pin here, and bend a hook on the point of it.

And again, why is it that bees in the cellar suffer most severely during winters when they suffer most out-of-doors?

Without stating my deductions at length, let me only say in conclusion that I have found among my own bees, that colonies with plenty of good stores, known to be such, always winter well, while those with stores of a doubtful character winter more or less disastrously.

I am satisfied that I cannot winter a colony well on stores that are decidedly poor in quality, by any method with which I am acquainted. Who can inform me how to do it? I am confident that I can winter any fair colony well, on stores which are certainly good, by any of the approved methods. Who doubts his ability to to do the same?

Of course it is not to be denied that a low temperature, moisture, etc., seriously aggravate the ill effects of poor stores, but I seriously qustion whether, unless present in an extraordinary degree, they would seriously affect the welfare of a colony well supplied with pure stores.

R. L. TAYLOR.

After the reading of the foregoing essay it was discussed as follows:

N. N. Betsinger—If sugar is better for bees, why is it not better for human beings?

Jas. Heddon—Because bees gather honey is no reason why it is the best winter food for them. Honey contains nitrogenous matter, and is well adapted to brood-rearing and supplying the waste of muscular tissue; but for this same reason it is not so suitable for a winter food.

N. N. Betsinger—I agree with Mr. Heddon, that sugar is a better winter food for bees than is honey; but the public does not understand the reason why. It reasons that if sugar is better for bees, it is better for human beings. Even though sugar is better, the public ought not to be told of it, because they draw a wrong inference.

N. W. McLain—We ought not to pay so much attention to what the public thinks, but rather to what is best for the bees. We all know that bees are not natives of a northern climate, and when we bring them here

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we may be obliged to make changes in their food; and to say all this must be explained to the public is foolish; that is *our business.*

(*To be continued.*)

For the Bee-Keepers' Magazine.

George E. Hilton.

George E. Hilton was born August 25th, 1846, in Bedfordshire, England, near the spot where John Bunyan wrote the world-inspiring book, "The Pilgrim's Progress," while incarcerated in Bedford Jail. His parents moved from England to America when he was between five and six years old. He tells me he was always attracted to bees, and never afraid of them from his earliest remembrances, and that he "lined" a bee-tree from bees working on slops thrown from the kitchen, when only twelve years old, and the cutting of that tree resulted in his having "all the honey he wanted" for the first time in his life, but always said, when he became a man he would keep bees, and that he enjoyed sitting beside an old log gum and watching the "tireless little workers" better than the sports usually indulged in by boys. The first colony of bees he owned was a present from his wife. The parties of whom she bought them had another colony, and he bought that. This was the summer of 1877, and the two were increased to four colonies. They were on odd-sized frames, and were transferred to the American frame, and increased to six colonies and a nice lot of honey; but he found too much honey on the top bars, and learning of the Langstroth frame, they were again transferred, and from that time on until now his success has been very gratifying. He has raised largely comb honey, and for the last eight years his average per colony, spring count, has been about seventy-five pounds, the past season being the poorest.

Mr. Hilton has a very nice library of books by the best authors on bee-culture, and takes nearly all the bee periodicals.

He put the first section of comb honey on our home market ever seen here, and now has a large trade with surrounding towns, and seldom has to ship to the large cities. He has helped many to start in the business, and Newaygo county is fast coming to the front as a honey-producing county.

We have a local organization, called the "Freemont Progressive Bee-Keepers' Association," of which Mr. Hilton is President. He has always taken great interest in convention work, believing it to be one of the best sources through which to receive and impart knowledge, has attended the North American, whenever it has been within his reach, and has never missed a meeting of the Michigan State Bee-Keepers' Association since his first attendance, in 1881. He was elected President of that body in 1886, and re-elected in 1887.

Question No. 33.

In answer to question No. 33 in last number, friend Flick says: "In this locality feeding cannot be done in winter. If you can procure honey in combs, and give it to the bees on some warm day, it might do. This is the only thing I would recommend. I have experimented both in the cellar and out-door winter feeding, and the bees died in every instance. In a mild, open winter it could be done, but if your bees will be confined to the hive for a long period, they are liable to perish. Feeding must be done before winter. Then the bees can properly store it, and remain quiet in cold weather. H. H. FLICK."

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For the Bee-Keepers' Magazine.

Legislation for Bee-Keepers.

J. E. POND.

I have carefully read every article, I think, that has been written on the above subject, and as yet have failed to find that any of them give us a practical or practicable legal remedy for the existing state of things. In fact, none of them seem to try so to do. The whole trouble lies in the fact that every man has the right to do with his own just what he pleases, so long as he does not disturb the rights of any other person. I have the legal right to cultivate my own soil in myown way. I have the right to occupy it as I choose, to build houses upon it for my own occupation, or for the occupation of my bees, provided I do not interfere with others. This being the case, and it not only being my legal, but my inalienable right, I fail to see how any legislation can prevent, except such as will cut right to the core of the industry of bee-keeping itself. Bees must be declared a nuisance of some sort to prevent my keeping them, and, if so declared, how can they be kept by any one? My own opinion is that the matter is about right now, and that the law of "supply and demand," and of "natural selection," will better govern than any others. If I am wrong, who will set me right? Who will be the first to draft a statute that will be equitable, and not interfere with the "bill of rights?"

North Attleboro, Jan. 4, 1888.

Thanks.

My advertisement in December number is bringing in orders at a lively rate. The BEE-KEEPERS' MAGAZINE is an excellent advertising medium. I am having all I can do. Success to you. I mean it.

C. M. GOODSPEED.

Thorn Hill, N. Y., Dec. 19, 1887.

Who Will Answer?

Will those who have used the jackets in cans for shipping extracted honey please tell me if you throw in the can free with the honey, or do you get any pay for the can, or do you have the cans returned when empty? If returned, at whose expense?

SUBSCRIBER.

Our Clubbing List.

We offer the following unusual Clubbing List. We consider them *first-class* periodicals, and we cannot too highly recommend them:

	Regular Price.	Price with MAGAZINE.
The Farmers' Magazine,	$ .50	$ .85
The Poultry Keeper,	.50	.85
The Practical Farmer,	2.00	1.75
Agricultural,	1.00	1.25
Prairie Farmer,	1.50	1.65
American Agriculturist,	1.50	1 65
Scientific American,	3.00	3.05
Century Magazine,	4.00	4.00
The Independent,	3.00	3.00
American Horticulturist	1.00	1.25
National Journal of Carp Culture,	.50	.80
Orchard and Garden,	.50	.85
Tuttle's Photograph called "Medley of 120 Prominent Bee-Keepers,"	1.00	1.25
The Poultry Monthly (new subscribers)	1.25	1.45
The Western Rural	1.50	1.75
Harpers' Monthly	4.00	3.75
" Weekly	4.00	3.90
" Bazar	4 00	3.90
" Young People	2 00	2.25
St. Nicholas		3.25
Photographic Times (weekly)	3.00	2.85
Photographic Times (monthly)	2.00	2.00
Planter's Guide, without premium	50	75

Catalogues Received.

Iowa Seed Company, Seeds and Plants—Des Moines, Iowa.

Bee-Keepers' Supplies—J. D. Goodrich, East Hardwick, Vt.

Cheney & Comstock, Bees and Queens—Sac. City, Iowa.

Willliam Hoyt, Bees and Queens, Ripley Me.

G. M. Doolittle, Bees and Queens, Borodino, N. Y.

The *Rhinebeck Gazette* annual, a very tasty little volume, containing much valuable information. Published by the *Rhinebeck Gazette*, Rhinebeck, N. Y.

Christian Weckesser, Italian Bees and Queens; also garden seeds and plants, Marshallville, O.

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Reviews.

A new candidate for public favor has appeared in the field in the shape of a monthly magazine, devoted to bee culture. The *Bee-Keepers' Review* is its name and W. Z. Hutchinson, of Flint, Mich., is its editor. It's purpose is to review other periodicals devoted to bee culture, and each month to have the whole periodical devoted to some one subject in bee culture. The paper is well gotten up and should succeed. We hope Mr. Hutchinson will find the editorial chair upholstered in roses.

We are in receipt of a copy of the proceedings of the last convention of the North American Bee-Keepers' Association, published by Thos. G. Newman & Son, of Chicago, Ills. This pamphlet will be of value for future reference, and can be obtained of the publishers or ourselves for 25 cents.

THE HONEY MARKET.

NEW YORK.

Comb honey. The market on this article is strong and steady. We quote 1 lb. sections paper boxes @ 21 c.; white clover, fancy glassed in 1 lb. sections @ 18 c.; 2 lbs. @ 17; buckwheat honey in 1 lb sections unglassed @ 12 c.; 2 lbs. glassed @ 11 c.; beeswax is steady and we quote 24 @ 26 c.

THURBER, WHYLAND & CO.

Nov. 25th, '87.

PHILADELPHIA.

White clover,	fancy,	1 lb. combs	....	17 @ 18
"	"	2 lb. "	....	14 @ 16
Buchwheat	"	1 lb. "	...	12 @ 13
"	"	2 lb. "	....	10 @ 11

Common or dirty and leaky, must sell somewhat lower.

Extracted per lb. 6@8c—small glasses preferred.

Choice yellow wax per lb. 22 @ 23c.; inferior 20 @ 21c.; white wax 26 @ 28c.

PANCOAST & GRIFFITHS.

Nov. 10, '87.

CINCINNATI, OHIO.

There is a quiet but fair demand for honey of all kinds. Extracted honey brings 4@9 c. a lb. on arrival. Demand exceeds arrivals. The demand for comb honey is rather tame. It brings 16@20 c. a lb. for best in the jobbing way. Demand is good for beeswax, which brings 20@22 c. a lb., for good to choice yellow, on arrival.

CHAS. F. MUTH & SON.

Dec. 12, '87.

DETROIT.

Best white comb honey in one pound sections continues to be quoted at 18@20c. Extracted 10@11c.

Beeswax—22@23c.

M. H. HUNT.

Bell Branch, Jan., 1888.

CHICAGO.

The business during the past month in honey has been light, only taken in a small way. The prices remain at 18@20c., for the best grades of 1lb section; 2lb sections or thereabouts 15c. The larger shipments are from the East. Extracted honey 7@10c., for white grades; 6@7 for dark. Beeswax 23.

R. A. BURNETT,
161 South Water street.

WANTS.

Advertisements in this column not to exceed 8 lines, 5 cents per line for each insertion.

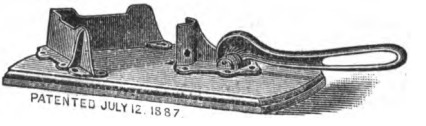
WANTED—A purchaser for pure Italian Bees in best hives, double-walled in winter, eight frames 12¼ x 12¼, at $5 per colony; or same in light, strong shipping boxes, 75c. less. Liberal discount on large lots. Dr. G. W. Young, Lexington, Mo.

Mention this Magazine when answering advertisement.

WANTED—to sell for less than cost a limited number of Receipts for making C. D. Bee protector, which protects the Bees from the following troublesome insects: Ants, Toads, Spiders, etc. Price 10 cents. Address

E. G. DIMON,
Box 20. Sheldon, Vt.

A MACHINE
—FOR—



Putting Together One Piece Sections.

It will pay for itself in one day's use. No Bee-Keeper can afford to be without one. Send to your supply dealer or to

WAKEMAN & CROCKER,
MANUFACTURERS.
PRICE $2.50. **LOCKPORT, N. Y.**
Correspondence with supply dealers solicited.

SMOKERS, HALF PRICE.

We have a lot of Bingham Smokers which we will sell at half price, they are perfectly new and are sold to get rid of stock on hand, as we have more than we can use this season. Just think, a two-inch Smoker for 50 cents, and one with shield, same size, 63 cents. A Doctor 3¼ inch for $1. First come, first served. Add 5 cents for postage in each case.

JOHN ASPINWALL,
Barrytown, N. Y.

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NEW BEE-KEEPERS'

TEXT BOOK,

Cloth $1. Paper 75c. post-paid.

This work is well up with the times, and we can heartily recommend it to bee-keepers. There have more been sold than any other book on bees ever printed, viz: Fifty-four thousand. The language is very plain, and nothing found in it that the veriest tyro cannot easily understand. In it is given the management of bees for every month in the year. You will make money by buying a copy. The paper bound copy, is the cheapest book published on bee-keeping that contains such a store of information. Address

BEE-KEEPERS' MAGAZINE, BARRYTOWN, N. Y.

HELLO! WHAT IS IT?

"Did you know that Clark was selling the best Smoker made?" "Is that so?" "Yes. And not only the best but the cheapest, it will outlast any two of other makes." Send for illustrated price-list of Bee-keepers' supplies free.

W. E. CLARK, Oriskany, N. Y.

If you are making a collection of calendars, send ten cents in stamps or cash to Messrs. Doliber, Goodale & Co., of Boston, Mass., for their elegant one for the New Year. It was designed and engraved by John A. Lowell & Co., and is an exquisite work of art.

MONEY

Saved to all who are interested in Plants, Fruits or Gardening by subscribing for THE PLANTER'S GUIDE, an 8-page monthly quarto, 50 cents per year with Premium. Plain and practical in all its departments. Simple copy free. Address

PLANTER'S GUIDE,
Ainsworth, Wash. Co., Iowa.

Trade "Secrets" and Private Recipes.

A collection of Receipes, Processes and Formulæ that have been offered for sale at prices varying from 25 cents to $500. With notes, corrections, additions and special hints for improvements. Edited by JOHN PHIN. Cloth, Gilt Title.....60c.

This work was prepared by the author for the purpose of presenting in a compact form all those receipes and "trade secrets" which have been so extensively offered for sale. Address

BEE-KEEPERS' MAGAZINE,
Barrytown, N. Y.

SECTIONS, SECTIONS

We are turning out the very finest one price sections in the market and sell them VERY CHEAP. Also bee hives, frames, shipping crates, EXCELLENT and very cheap. Write for free illustrated catalogue.

G. B. LEWIS & CO.,
Watertown, Wisconsin.

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A GREAT

FAMILY AND AGRICULTURAL PAPER

For six months for One Dollar, and you will get DOUBLE the value of your money in each department Address H. W. RAYMOND, Editor and Publisher, Germantown, Phila., Pa.

Mention this Magazine when answering advertisement.

BLACK BREASTED RED GAMES

THE KING OF DOMESTIC POULTRY.

My fowls have unlimited range. Standard birds bred from the finest strains. The fowl for the farmer and fancier. Hawks can't take them. Are excellent layers and for table they stand unequalled. For sale in pairs or trios. Eggs for hatching during the season. Prices Low. Send for illustrated circular. Address

H. H. FLICK, Lavansville,
Mayfield Farm. Somerset Co., Pa.

YES! KEEP HENS

and make money, but to know how to do it subscribe for

The Poultry Bulletin.

Established in 1869. The OLDEST and BEST Magazine devoted to Poultry, Pigeons and Pets. 32 pages, large finely illustrated, and costs only ONE DOLLAR for One Year. Try it a year and see if it is not a dollar well spent! To receive it promptly each month, for one year, send your address and $1 to

THE POULTRY BULLETIN,
Mention this paper. NEW YORK CITY

FARM LIFE

Begins its ninth volume as a recognized leader of agricultural journals. It is printed on beautiful paper, in a clear type large enough for all to read. Comprehensive and intensely practical in the treatment of its subjects. Takes the short-cut way of expressing its ideas. Rides no hobbies and parades no pet theories before its readers. Its

Seven Distinct Departments

Are ably edited and cover every phase of farm life. Labor-saving devices for the farm, household decorations, fancy work, &c. profusely illustrated.

It is a growing paper, the subscription list doubling itself annually. Subscription price 50 cents a year. **Only**

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Our wonderful premium offers are the best ever known. Agents make money quickly. Clubs can be formed and completed in any neighborhood in an hour's time. Sample copies, (premium lists, posters, &c. if desired) free. State if you want to get up a club. Address the publisher, **M. H. DISBROW Rochester, N. Y.**

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GOOD BOOKS FOR ALL!

The following books, each one of which contains a complete first-class novel or other work by a well known and popular author, are published in neat pamphlet form, printed from good readable type on good paper and many of them handsomely illustrated. They comprise some of the finest works ever written by some of the greatest and most popular writers, both of America and Europe, and place the best literature of the day within the reach of the masses of the people. Please look the list carefully over, and see if you do not find therein many that you desire to possess. Each one is complete in itself:

No. 166. **Wonders of the World,** NATURAL AND OTHER. Contains descriptions and illustrations of the most wonderful works of nature and of man. Very interesting and instructive.
No. 167. **Wonders of the Sea.** A description of the many wonderful and beautiful things found at the bottom of the ocean, with profuse illustrations.
No. 159. **"A Pleasure Exertion," and Other Sketches.** By "JOSIAH ALLEN'S WIFE." A collection of irresistibly funny sketches by the most popular humorous writer of the day.
No. 160. **The Aunt Keziah Papers,** by CLARA AUGUSTA, author of "The Rugg Documents." A most ridiculously funny book—quite as laughable and in every way equal to "Widow Bedott."
No. 164. **Christmas Stories,** by CHARLES DICKENS. Contains a number of the most charming Christmas stories ever written by the greatest writer of fiction who ever lived. Each one is complete.
No. 158. **Round the Evening Lamp.** A book of stories, pictures, puzzles and games, for the little folks at home.
No. 163. **Popular Recitations and Dialogues,** humorous, dramatic and pathetic, including all the latest, best and most popular.
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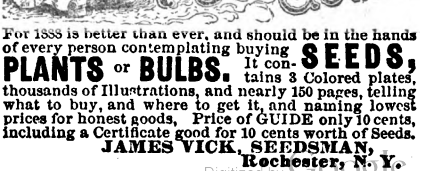

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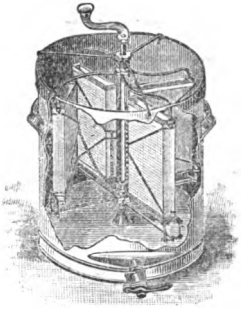

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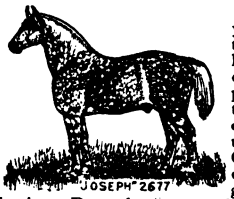

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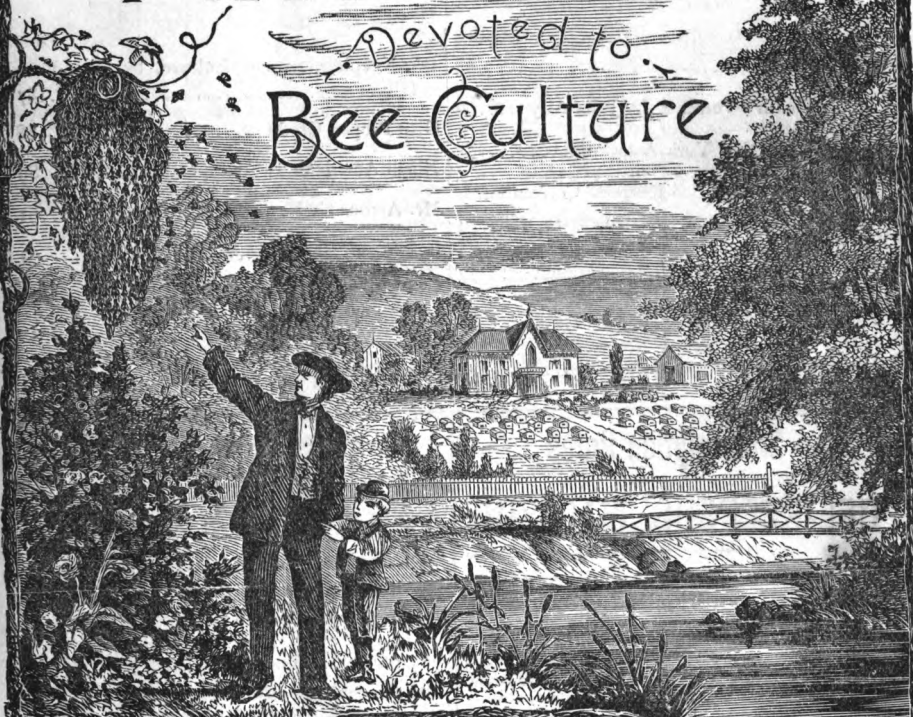

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THE BEE-KEEPERS' MAGAZINE.

50 CENTS PER YEAR.

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BARRYTOWN, MARCH, 1888.

EDITORIALS, &c.

INSTRUCTIONS TO CORRESPONDENTS.

Correspondents writing matter for publication will confer a favor on the editor by writing on only one side of the paper, and giving their full name and address. The latter will be given in the MAGAZINE, unless there is a request to the contrary. Kindly write matter for the MAGAZINE on a separate sheet from business communications, so that we may not have to mutilate business letters to get at the literary matter. Rejected manuscript cannot be returned unless stamps are forwarded for that purpose.

THE Eastern New York Bee-Keepers' Association took a sensible view of the reason for the small attendance at the conventions in New York State this year. There can be no doubt but that the greatest agency in reducing the attendance is the fearful weather which is almost sure to come about the middle and latter part of January. Great cold, snow blockades and winter gales, must deter many from coming who would certainly be present, were it not that home duties, incident to such rigorous weather, compels them to forgo the pleasure of meeting their friends "in convention assembled." Another step in the right direction was the instruction given the excutive committee as to the date of the next yearly meeting. Special efforts are to be made for a large and instructive convention.

It is a pleasing thing to note in this association, a liberal mindedness which is to be highly commended. There is an element in the state association whose motto might appropriatly be "I work for myself, first, last and every time." In fact that sentiment was publicly voiced by one of its members. It is to be regretted that such a sentiment prevails. We do not believe that any real progress can ever be made so long as this feeling has the upper hand. If all the world was composed of such persons what a wretched one it would be to live in. One need not necessarily be a philanthropist, but far better *that*, than to be inclined to be selfish. We cannot make ourselves believe that the average bee-keeper is for self, first, last and every time, or one who has no interest in anything but the promotion of his own pecuniary welfare. The lesson taught Cain, is just as true to-day as in the days of Adam, and we should beware lest, in forgetting to a great extent that we are our brothers' keeper, "the ground, it shall not henceforth yield unto us her strength."

IN the death of Arthur Todd the bee-keeping world has lost an earnest advocate. Mr. Todd was a man of energetic temperament. This trait showed itself in marked degree when he established a course of public lectures at the Zoological Gardens at Philadelphia.

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These lectures benefited the whole community, not only the bee-keeper, but the general public. No nicely labelled honey, or attractive show window could affect the advancement of the honey market more than these lectures. They enabled the *public* and the *bee* to become acquainted with each other. This was not hiding your candle under a bushel, as some would have us do. Openly Mr. Todd proclaimed the interesting habits of the bees, and by this means did not make bee-keepers among this city folk so much as honey consumers. Be mysterious about your business, and human nature will assign to you other than righteous motives. We extend our heartfelt sympathies, not only to the bereaved family of Mr. Todd, but also to the Philadelphia Bee-Keepers' Association, who has lost so worthy a member.

We desire to say that the report of the North American Convention was compiled from advance sheets very kindly provided us by Editor Newman of the *American Bee Journal*. We are happy to note that there seems to be a very amicable feeling between the editors of the several bee journals and magazines, and we only wish that the same editors would put their heads together and urge unanimously the formation of a grand international association.

Messrs. J. B. Mason & Sons have undertaken to add four pages to their publication; also a poultry department. We hope this combination will succeed, but from our own experience we doubt it, though perhaps the Messrs. Mason are better fitted to undertake such work than ourselves. We wish the *Bee-Keepers' Advance and Poultrymen's Journal* a prosperous and prolonged life.

The duties of the committee on exhibits, at our conventions, are simple enough under the present method of working. They simply enumerate the articles exhibited, say something pleasing about each one, and that ends it. A smart boy of fifteen years of age could do as well. If they dare make adverse comments, as did the committee of the N. Y. State Association last year, their report is immediately returned to them for revision. These committees and their duties are rapidly degenerating into a farce, and the sooner, in our opinion, they are done away with the better. Simply have a member make a list of the articles, and let the members present judge for themselves as to their merits.

The Question Department, as well as a large number of interesting articles have been crowded out of the last few issues, owing to the introducing of convention reports. These have been more complete, and of greater value, than many given heretofore. The essays, which were read at several of these conventions, will appear in future numbers of the Magazine, and will afford interesting and instructive reading. It is our intention to introduce a Scientific Department, as well as a Beginners Department, at an early day, thus covering the whole range of bee literature.

We have an unusual offer at our office from a gentleman desirous of employing a good apiarist steady work all the year around, house rent free, every facility, situation near Buffalo. Reference as to ability and honesty required.

We would state again that Canadians desirous of subscribing to the Magazine, can do so through R. H. Holterman, Brantford, Ont. Can.

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THE *American Bee Journal* has put on a new suit of clothes. Apparently Editor Newman thought the old suit worn out. Perhaps it was, but we did not notice it. We fail to find, in looking the old clothes over, that there is any bad bagging at the knees, or that the elbows are "out." Perhaps there are patches on the "unmentionables," caused by the *Journal* "sitting" so often on the evil doers, but if present, they are entirely covered from public view, by the dignified editorial coat tails.

THE offers of books, as found in the Feb. No., also of calculator, will stand good till further notice. We cut the same from our advertising columns in order that we may give our subscribers more reading matter.

For the Bee-Keepers' Magazine.

MOLLY HEATH'S VENTURE.

A Serial Story.

BY JULIA ALLYN.

(Continued.)

PART SECOND.

The first week in July was always an exciting one in Warston, especially among the young folks.

During that week the schools were closed and on the Fourth of July, the annual picnic, in which old and young participated, was celebrated.

The closing day of school, which was always Friday, came this year on the first day of July, and the public examinations which were held on that day caused not a little fear and trembling among the young aspirants for honors. It proved this year to be an unusually eventful day to the Heath family for Rob had been striving during the year to obtain the first rank in his class, and at the close of the examination the first prize for scholorship, a gold eagle which a wealthly member of the committee had offered, was awarded him. It had been a hardly won success, for although Rob was naturally of a studious temperament, his friend and neighbor John Pierce, who came next him in the class, was a much more brilliant scholar and where Rob had spent hours of hard labor over certain studies John could master them in one half the time; but patient presevering application had been successful and Rob had won the coveted first prize.

Tom was wild with joy and hardly knew how to contain his pleasure. "Rob," he exclaimed, "You're a trump. I knew you would do honor to the family. It's well there is one scholar among us, for try as hard as I can, I can never master even the plain English branches, leaving out of the question entirely the horrid Latin and Greek."

Poor Tom, never very high in his classes, since the bees had arrived, his home studying had grown less and less and every spare moment had been spent by him in reading books which related to the habits and customs of these little insects, which grew more and more a wonder to him the more he learned about them. His mother had watched him anxiously at first, but on talking over the matter with Molly, the latter had said, "Mother dear, Tom will never make a scholar, at any rate a first class one; he needs an active business life to develop the many noble qualities which he possesses; I am glad he seems interested in bees, for the more he reads about them the less likely he will be to spend his time in reading trashy novels and as he becomes interested in their wonderful mechanism and habits he must be led to recognize a Divine wisdom and power which has constructed these little creatures and controls their movements, and from these wonderful manifestations he will be led to look all about in nature and perceive in her works the impress of the same Divine hand, and this very study will broaden his mind and give a desire to acquire information in other branches of science."

"Well Molly perhaps you are right," said Mrs. Heath. "At any rate we will try him awhile; he will have the whole summer vacation in which to cultivate this taste for bee literature, and in the fall perhaps the novelty will have worn

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off and he will attend to his school work more effectively."

Little Nan, who, like Rob, was of a studious disposition and would for hours pore over an interesting book, had been greatly benefitted by the arrival of the bees,

Although each school task had been faithfully performed and she had finished the term with honor, having taken a second prize in the class above Rob, yet from being out of doors so much and watching the boys at their work, her pale cheeks had gained a fresh, healthy color, and her steps, which had been listless, had acquired an elasticity; changes over which Molly and her mother rejoiced greatly.

Nan and Rob were the book-worms of the family and on them its literary hopes centered, but Mrs. Heath had often feared that this tendency to continuous study might impair their health and she rejoiced daily that the advent of the bees seemed to furnish the tonic they both required.

The Fourth of July was to be celebrated by the American portion of the citizens of Marsten in a grand picnic. About a mile from the village, on the banks of Millbrook river, as the little stream was called, was a large pine grove known as Forest Hill Grove and every one considered this as just the place for the festivities, as it could be reached by a pleasant row by boat or by a shady drive along Elm Avenue

For a week preparations had been going on indoors for the event. Of course the children wanted money with which to buy a suitable amount of rockets, roman candles and torpedoes; what boy ever considered Fourth of July a success without these accompaniments ; and Nan had set her heart on Chinese lanterns, with which to illuminate the cottage grounds in the evening, as the children were planning to have a little party then for the fireworks exhibition. Among other guests they were intending to invite a poor family from the village.

This family consisted of the four children of Frank Graham, an industrious man, who for years had done chores for the Heaths, and whose wife had been their washer-woman for a long time before her death, which had taken place the year previous. Mary, the eldest child, about fifteen years of age, kept house for her father in four rooms in a tenement house near the large woolen mill, in which her father had found employment and with the aid of kind friends, kept the three younger children, John and James, boys of ten and eight, and Bessie a little girl of six years, as tidy as possible. Mrs. Heath had taken a special interest in them, as had also the children, who had spoken to their companions about them and their needs, and Molly and Nan had induced a little society, to which they belonged to work for them, and many old garments had been refitted and many new ones made by the deft and skillful fingers of the "Busy Bees," as they styled themselves, and these had found their way to Mary Graham at times when she sorely needed them. The Heath children always included the Grahams in their "good times" if possible, and thus learned early the blessedness of "doing good" to the needy.

A council of ways and means had been held by the Heaths concerning the approaching celebration and Molly had decided that to raise the needed funds some honey must be sold. As an outgrowth of this decision on Saturday morning, the day after the examination, the boys harnessed Fleet, the pony, into the dog-cart and with Nan as escort and a dozen of pound boxes of the best apple-blossom honey stowed carefully away in a basket under the seat, started off in high spirits, hoping to find a purchaser in a certain Mrs. Fry, a wealthy lady of their acquaintance, who was an invalid and lived in a large brick mansion surrounded by charming and extensive grounds, a short distance outside the village.

Little Nan's heart almost misgave her, however, when the imposing butler, who opened ths door, ushered her into the presence of the dignified lady, who reclined on a luxurious lounge in the richly furnished library where the invalid spent her mornings. But Mrs. Fry, who had held Nan's father in the

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highest esteem and formerly been one of his most liberal supporters in church work, was quite interested in the shy girl's account of "Molly's Venture" as she called it and when Nan, as she proceeded, told how much they hoped to accomplish by aid of the bees and that even then they had honey for sale, the kind hearted lady entered into the project at once and said she would gladly buy the dozen boxes and that in the fall she would like to purchase a winter's supply of both comb and extracted honey. So Nan called Rob and he brought in the dozen pounds of pure golden honey and received the three dollars and sixty cents which Mrs. Fry gave him, with thanks. Then the lady asked the children many questions about their mother, their home and school life, and especially about their new industry, and at parting said she expected her nephew, Ned Stearns, soon to spend the summer with her and she wanted, when he came, to have a garden party and have them all out to see her.

What a joyous description of their kind reception Nan and Rob gave to Tom during their homeward drive can well be imagined, and when on their return they showed the money they had received, and told of the garden party, which was to take place, there was a general rejoicing, and the thought arose in Mollie's mind: "I wonder what Ned Stearns will think of my business project."

Fourth of July morning dawned auspiciously. The boys were up by daybreak, and, with their companions, by noisy demonstrations, had awakened the whole neighborhood. Tom had suggested that, as John Pierce and his companions were to have a lemonade stand at the picnic, he and the Graham boys might have a stand for the sale of honey, and in that way they might advantageously advertise their bee business.

Accordingly, Molly put up two dozen pound boxes of the best honey in a basket, and Tom and the Grahams had started off right after breakfast in the pony cart, carrying with them the honey and a large box, which, covered nicely with a new piece of marble oil-cloth, was to serve as their stand. John Graham was to bring back the pony cart, while James was to remain with Tom and assist him as salesman. At 11 o'clock Mrs. Heath, Nan and Teddy were to be driven by John to Forest Hill in the carryall, with a bountiful luncheon stowed away in baskets under the seat, while Molly, with Mary and Bessie Graham, were to be rowed over by Rob in his little boat, carrying with them the croquet set, which, on such occasions, was always in demand. The sun shown brightly, and all were in the best of spirits. The Heath children's happiness was greatly increased by seeing the sunny smiles which wreathed the faces of the little Grahams. A great treat indeed it was for the little tenement children to spend a whole day away from the close atmosphere of their dingy home, and Molly, always light-hearted, was the life of the party, caring for every one, and by her usual tact and unselfishness, bringing a joyous gladness to all with whom she came in contact. Rob, admiring Molly, tried to imitate her in kindly ways, and the two were unwearied in their efforts in providing games for the amusement of the children, and in seeing that the wants of the elderly folks were all supplied. Tom, the bustling man of business, was on the alert for customers, and when he had enticed any of the curious passers-by to stop and purchase, he answered their questions so politely, and gave them so much information respecting the Heath Apiary, that they invariably said they would like to know more about it, and would give Rosecroft an early call. In the evening the children of the neighborhood had a gala time with the fireworks, and Rosecroft had never looked prettier than it did on that occasion, with its festoon of bright colored lanterns, and its illumination of red and blue lights. No doubt Ned Stearns felt its attraction as he drove up to the gate and offered his services in the roman candle line, and then lingered awhile on the porch after the children had departed. A fairy scene in truth it appeared to the

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Grahams, and it was no wonder that after they had laid their heads upon their pillows that night the events of the day should have appeared to them again in bright dreams, and ever foremost in the lovely visions should arise the charming fairy figure of the presiding genius—Mollie.

The Eastern New York Association.

The Eastern New York Bee-Keepers' Association held its annual session in Agricultural Hall, Albany, January 24, 1888. The attendance on the first was small, owing to the terribly cold weather then being experinced. One of the members reported a temperature of 30 degrees below zero at his home the day before he left for the Convention. President Pierce called the meeting to order at 3 P. M., and, as so few were present, the topics on programme for discussion at the first session were laid over until more persons should be present. Later in the afternoon the Secretary and Treasurer made their reports, the latter was especially to be commended.

TREASURER'S REPORT.

RECEIPTS.

Cash on hand Jan. 28, 1886	$17 36	
Interest received on same,	1 89	
Received of Secretary	5 50	
		$24 75

DISBURSEMENTS.

Paid Janitor	5 00
Cash in Treasury	$19 75

On motion the Treasurer was given a vote of thanks for his handling of the funds of the Association.

After the reading of the reports several new members were taken in.

Mr. J. I. Parent, of Charlton, N. Y., read an essay on "Ought Bee-Keepers to Make Exhibits at Fairs?" In this essay, which will be given in full in a later number of the MAGAZINE, he urged the bee-keepers to make exhibits, and showed that in many instances the paucity of exhibits were more the fault of the bee-keepers than the fair managers, owing to the little interest the former took in the exhibiting of honey.

An interesting discussion followed this paper, in which it became apparent that the managers of our State Fair were anxious for the bee-keepers to take hold of this matter, and would gladly help by any means in their power, a suitable exhibit of honey and bees at our State Fair.

Is was then moved and seconded that a committee of three be appointed to draft a schedule of prizes for exhibits of honey, bees and apiarian supplies at our State Fair.

Messrs. Aspinwall, Vrooman and Parent were then appointed by the Chair, who were instructed to make their report as soon as possible.

EVENING SESSION.

Several new members were admitted, after President Piece had opened the evening meeting at 7 o'clock.

Mr. Boomhower not being able to be present, his essay on "Essential points of successful wintering," was then read by the Secretary. This, as well as the other essays read, will appear in succeeding numbers of the MAGAZINE.

The discussion on "Is spring dwindling the immediate outcome of the manner of wintering," was not very aminated. The opinion seemed to prevail that this was a subject pretty well hashed up at subsequent meetings, and that until something radically new is found on the subject it had better be laid to rest with decent obsequies.

Many opinions were given as to the requisit amount of ventilation bees should have in wintering out doors and in the cellar. The general conclusion being that there should be either upward or downward ventilation, but not a combination of both.

SECOND DAY.

President Pierce called the meeting to order at 10 A. M. Mr. J. H. Martin, of Hartford, N. Y., not being present the Secretary read his essay on "Will it pay to establish out apiaries."

The discussion that followed seemed to show that those present were of the opinion that it required a man of peculiar attainments and placed in a good locality to be successful in running a lot of out apiaries.

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At the afternoon session quite a number of new members were admitted. The President delivered his address as follows:

PRESIDENT PIERCE'S ANNUAL ADDRESS.

My Bee-Keeper Friends:—Through the goodness and blessings of a merciful God, a portion of our members have been permitted to assemble together again, to learn from each other concerning our chosen pursuit.

I *thank* you for the honor conferred upon *me.*

As your presiding officer I am sorry that I have not been able to make this convention more interesting than I have. I have sent circulars and programmes to more than 50 bee-keepers' and circulars to 35 newspapers, as news items, and I think all, or nearly all, published the the same in whole or in part. I am thankful to our worthy Secretary for the interest he has taken in getting out our programmes, and hope that *all* will learn something that will benefit us and make us anxious to come and get our friends to come with us to our next convention. In this way we will get better acquainted and hearing from each other will be eventually benefited.

The past year has been one of blessings to *us.* No cyclones, no extreme drouth or prolonged rains, yet in other states they have suffered very much.

Our honey crop has been medium, with fair prices.

If agreeable to the convention, I would recommend that supply dealers be invited to attend our conventions, bringing supply samples to exhibit, as that might have a tendency to induce some bee-keepers to meet with us, to learn of the improvements here brought before the public. By so doing I think our numbers would be increased and our conventions rank among the largest and best, both in numbers and interest.

This is the wish of your humble servant. T. PIERCE.

After the address the election of officers took place. On motion the Secretary was directed to cast a vote for the old officers. As a result the Secretary read the following list of officers for the ensuing year: Thos. Pierce, of Gansevoort, N. Y., President; Frank Boomhower, Gallupville, N. Y., Vice President; John Aspinwall, Barrytown. N. Y., Secretary; C. H. Smith, Pittsfield, Mass., Assistant Secretary; A. E. Woodward, Grooms Corners, N. Y. Treasurer.

The Secretary then read an essay by Mr. Will M. Kellogg, of Omaha, Ill., entitled "Marketing Honey at Home." This essay was a very able one, and all united in a vote of thanks to Mr. Kellogg for the interesting and instructive matter brought forward in it.

In the discussion of this subject Mr. Adams, of Troy, N. Y., gave some valuable facts. This gentleman makes home marketing not only a specialty, but a great success. Others gave their ideas, and it was generally conceded that the correct thing was to fill up your home market *first*, and then ship to the commission men or wholesale honey merchant.

The Committee appointed to draft a schedule of prizes for exhibits of honey, wax, bees and apiarian supplies made their report, which was accepted, and the Chairman instructed to forward same to the Secretary of the Agricultural Society.

In the evening the subject of "How and When to Market Honey" was discussed, Mr. Wright, of Albany, making a short address on the subject. He strongly advocated great neatness in putting up honey for the general market, and also a uniformity of packages. He contended that the worst feature the honey commission man has to deal with is the variety of package. When an order is received and filled with one package, and later the customer sends word: "Duplicate my last order," the chances are ten to one that the honey man cannot do it. He may have the same grade of honey, but it will be in perhaps an altogether different form of package from the first, and he thus loses the order.

After a thorough discussion of this topic, the question whether a third day session would be held or not was agitated. On being put to a vote, it was decided that as the attendance was not

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as large as usual, the third day be dispensed with.

Several members contended that the small attendance at the two conventions in this State this year were owing to the bitter cold weather and snow blockades. It was then moved and seconded that the next session be held, if possible, during the first week of next December, and, if the hall could not be obtained for that week, then the week following.

Motion was carried.

On motion the President was reimbursed for the amounts he had paid out for postage in notifying members and newspapers.

Moved and seconded that the bee journals be allowed to publish the proceedings of this convention.

The Convention then adjourned subject to the call of the Executive Committee.

JOHN ASPINWALL, Secretary.

For the Bee-Keepers' Magazine.

Report of Vermont Beekeepers' Convention, Held in Burlington, Jan. 18 and 19, 1888.

According to programme the Convention was opened on Wednesday afternoon, the President, P. C. Abbey, of Essex, in the chair.

After reading of the minutes of last annual meeting, reading of constitution, etc., the Convention listened to a poem entitled "Vermont Bees," by F. H. Wheatley, of St. Johnsbury, which was followed by a discussion of the same subject by different members of the Convention, the general opinion being that there were two races of what are termed "Black Bees." One beekeeper related a visit to a neighbor's apiary, who complained that a part of his bees were not good honey gatherers, but were lively and cross, making it difficult managing them, while others in the same yard were of more peaceable disposition and better workers. On examination it was found that the former were a small black bee, while the latter were what is called the brown German bee. Others had noticed a similar difference. Some expressed the opinion that a cross between the Italian and German bees were common in Vermont and as desirable for all purposes as the purer bloods. Mr. A. E. Manum, of Bristol, was asked what he thought of the Holy Land and Cyprian bees, replied that he was favorably impressed with the Holy Land variety, but not with the Cyprian; they were too cross.

V. N. Forbes, of West Haven, who has had quite a good deal of experience with the native bee, thought there was more difference in varieties than he was aware of at first. Thought the little black bees were not so much given to swarming, but were not as good for honey gathering as some others. Would like to know more of the Italians whether they were any better than the German bees. O. J. Lowrey, of Jericho, thought in a short, quick honey flow the Germans would beat the Italians, but in the long run, under varied circumstances, the latter were the best. One member stated that in one season his Italians produced 30 pounds per colony more than the blacks, but the *stings* were more numerous from the black bee. Mr. Manum was inquired of if he had Italians that would work on red clover? Replied that he had, and gave some proofs in his experience. Thought they would not work as well in some seasons as others. Was asked if he did not think the tubes of the clover blossom would be shorter in some seasons and localities than in others? Thought the soil, atmosphere and other causes would make a difference. V. N. Forbes had known German bees to work on red clover one season, but not in others on the same field.

The question: Is it advisable to insert empty combs in centre of brood nest for the purpose of spreading brood in the spring? was opened by F. M. Wright, of Enosburg. His experience had proved that if done at all it must be done with great care. It might be advisable when the weather becomes warm, but would "go slow." At one time inserted two combs in a strong colony of bees, and it gave them a set back they did not get over in all sum-

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mer. Mr. Manum was asked his practice? Stated that he lets the brood nest alone, keeps the brood chamber contracted, and keeps the bees warm. Would sometimes put a comb of honey next to the brood nest on the outside. He was asked if he practiced feeding meal or salt to bees in the spring? Replied he had done so in former years, but did not now, and could not say as it did any good.

The following question was led by A. E. Manum: What is the best method to prevent an increase of colonies? He had not found it possible to prevent swarming by cutting out queen cells; found he could get more comb honey by allowing the bees to swarm. Then puts two or three swarms together, allowing all the queens but one to return to the old hive with a portion of the swarm. Had prevented increase by hiving on few combs, using a queen, excluding board, and giving plenty of box room, and then destroying the old bees in the fall, as they would be likely to die before spring anyway. Another way is to take the queen away from the colony and return after fifteen days, keeping the queen cells cut out in the meantime.

H. L. Leonard, of Brandon, did not think it practical to prevent swarming, but thought it could be checked; would give plenty of box room and practice the tiering up plan. Would advise compelling bees to care for themselves as much as possible. Would plan to save time as much as any other item.

EVENING SESSION.

The following named persons were appointed as committees by the Chair:

On Nominations—H. L. Leonard, Brandon; O. J. Lowrey, Jericho; V. N. Forbes, West Haven.

On Awards—J. W. Smith, Stowe; P. D. Percival, North Ferrisburg; M. F. Cram, Braintree.

On Resolutions—F. H. Wheatley, East Brookfield; Miss M. A. Douglas, Shoreham.

The question, beekeeping in Vermont, does it pay? was opened by R. H. Holmes, who discussed the question under the following heads, as given by N. G. Webster, who was to lead the discussion, but was not present: Its hindrances are a poor location, our long, cold winters, lack of a thorough knowledge of the business. A person must have good judgment and a good supply of common sense. Its expenses and profits were set forth in a paper by J. H. Larabee, Larabee's Point. He thought the expense of an apiary of one hundred colonies of bees, with all necessary fixtures and utensils for carrying it on successfully, with the addition of a two hundred dollar honey house, would be worth $1,000. The average yearly expense he placed at $620, which included labor, interest, running expenses, etc. The average yearly income was placed at $800, leaving a net income of $180, to represent the risks of wintering, disease, shipping of honey &c. The question was closed by H. L. Leonard, under the head of bee-keeping as a business. Thought nothing was worthy the name of business that would not pay expenses and leave a margin for profit. Thought bee-keeping would do this. It has its off years when it will not pay like all other kinds of production, but no more so than others. There are but few locations in Vermont where bee-keeping cannot be made to pay to a greater or less extent. There are less enemies to bees than in almost any other section of our country, and the average yield per colony is larger. Bee-keeping in Vermont has paid, and will pay, but said that he takes into consideration that one understands the business and management of the apiary. The Convention was favored with the presence of Mr. J. Van Deusen, of the State of New York, who manufacturers largely the flat bottom foundation, who said he thought the formation of the hills and valleys of our state was favorable for honey production, as we would be favored with early and late bloom of the honey producing plants.

This discussion was followed by an essay by Mrs. F. A. Wolcott, Shoreham, entitled "The Pleasures and Difficulties of Bee-Keeping." She thought there was pleasure in seeing the clean

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white sections of honey taken from the bees, *by some one else*; also in preparing it for market, but thought there were some things not so pleasant, and related an instance of attempting to hive a refractory swarm, and receiving thirty-three strings as a reward for her labor; also spoke of the expense of the business, keeping in advance of the profits for the first few years, and has to be met first. The writer showed a good practical knowledge of the business, if not obtained by personal experience.

Miss M. A. Douglas, Shoreham, read an essay on the question, "Should women keep bees and join the Bee-Keepers' Association?" She could speak from experience that, while there was much hard labor in connection with the business, she saw no reason why a woman could not keep bees to a greater or less extent as successfully as the sterner sex, provided she was adapted to the calling and in love with it; and, if men were benefitted by association and interchange of idea and methods of work, why not women?

THURSDAY MORNING SESSION.

The Secretary's report showed the present membership to be 139, an increase of 30 since the last report. The Treasurer's report showed that the expense of the past year had been $33.12, and receipts, including amount in Treasury, $24.02, leaving a deficiency of $9.10, which was made up by contribution by the members present. It was voted by the members of the Association that Article 5 of the Constitution be amended to read as follows: Any person may become a member of this Association by giving his or her name to the Secretary, and paying annually to the Treasurer a sum not exceeding one dollar, except ladies, who shall be admitted free. Voted that the members be required to pay 50 cents to defray expenses for the coming year.

The following named persons were appointed a Committee to revise the present Constitution and bring it before the consideration of the next annual session: P. C. Abby, H. L. Leonard, R. H. Holmes and Miss M. A. Douglas.

The Committee on Nomination reported as follows:

For President, R. H. Holmes, Shoreham.

For Vice-Presidents, F. M. Wright, Enosburg; D. S. Hall, Lower Cabot; J. E. Crane, Middleburg.

For Secretary and Treasurer, Miss M. A. Douglas, Shoreham.

The above were elected as officers for the ensuing year.

Report of Committee on Awards:

In regard to the wire separators exhibited by J. D. Goodrich, of East Hardwick, your Committee would say that they have had no experience in its use, but, judging from its appearance, see no reason why it would not be useful and profitable for bee-keepers, and would recommend its trial. The sections, crates, clamps, etc., exhibited by Messrs. Prime & Gove, Drake & Smith and L. C. Cotey are all very nice, there being no choice, and think it would be very difficult to improve on the workmenship or quality of any of the goods.

The honey exhibited by R. H. Holmes is the finest we have ever seen and consider it perfect.

The foot-power machinery exhibited by F. M. Wright is a most excellent thing for bee-keepers' use, and know of nothing better for practical use for making bee-keepers' supplies.

The bee hive exhibited by H. D. Davis, we think, shows good workmanship, also a good degree of ingenuity on the part of the inventor, but consider some of the standard hives of simple construction to be of more practical use for ordinary bee-keepers.

We think the wired foundation exhibited by J. Van Deusen & Sons, is superior to any we ever saw, and think it first rate, but, in regard to the flat bottom, having had no experience, we are not able to decide.

The foundation exhibited by J. D. Goodrich we *know* to be first rate.

The Committee on Resolutions presented the following, which were passed by vote of the Committee:

Resolved, That the Fourteenth

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Annual Bee-Keepers' Association return its sincere thanks to all those who did not fail to be present and carry out their respective parts of the programme.

To our worthy Secretary for his earnest work in behalf of the Association.

To the exhibitors of bee-keepers' supplies for their attractive display.

To the proprietor of the Van Voss House for the free use of this hall.

To the railroad officials for reduced rates over their several roads.

The newly elected officers having assumed their respective positions the discussion, "Is it profitable to use full sheets of foundation in the brood chamber?" was opened by F. H. McFarland, St. Albans. He thinks it is a waste of wax to use full sheets, although more honey may be secured by their use. In full sheets the foundation is sure to sag and cause elongated cells near the top which the queen is loth to occupy. Mr. Lowery advocates the use of starters. Mr. Leonard would use full sheets even unwired. Mr. Percival uses full sheets in the middle of the brood chamber with starters on frames at the sides. Mr. Manum said if old combs and starters are placed alternately in the brood box the combs will be bulged. He discouraged the use of foundation for family apiaries simply, but thought the specialist could not afford to do without it. Mr. Davis, on account of expense last year, tested the use of starters, and was sufficiently satisfied with the results to try it again. As to width of starters, some thought an inch better than three or four, while others preferred the latter width. The Question Drawer was then opened by Mr. Manum. In answer to (1) What shall we do with unfinished sections at the close of the honey season? he advised extracting or feeding to the bees, between first bloom and honey-flow. If candied, uncap and place over the brood nest, to be cleaned by the bees. (2.) Is it advisable for bee-keepers to join the Bee-Keepers Union? Yes, by all means. It is the same principle as an insurance on buildings. (3.) Is it profitable to use a bee tent to place over the hive during manipulation to prevent robbing? Mr. Manum not having any experience, Mr. Leonard said, Yes. (4.) Is comb honey injured by freezing? If so, in what respects? The flavor is unchanged, but the caps are sometimes injured and combs cracked. (5.) Are the bees ever smothered from having the hives covered with snow? No; the more snow the better. When a thaw comes, clear the entrances. Dead bees should be removed, as sometimes they clog the entrances, thereby smothering the bees.

The discussion of "Marketing Honey" was participated in with quite a degree of enthusiasm. Most of the reports were laughable as well as lamentable. The presumption is that commission merchants' ears burned.

The convention adjourned to meet at time and place as designated by the Executive Committee.

MARCIA A. DOUGLAS, Secretary.

New York Bee-Keepers Association.

(Continued from page 50.)

SECOND DAY.

The second day's session of the convention was held at Bagg's Hotel. Many prominent and well-known bee-keepers throughout the State were present, and considerable more enthusiasm manifested in the proceedings. At the morning's session, the following were named as a Committee on Exhibit: W. L. Coggeshall, West Groton; J. A. Taylor, Ilion; W. H. Beach, Cortland.

The question "How can we organize an international bee-keepers' association that will best promote the interests of bee-keeping," was called for discussion. The following essay prepared by Dr. C. C. Miller, of Marengo, Ill., was read by Secretary Knickerbocker.

Before inquiring "how," it may be well to enquire whether it is desirable to do so at all. Only a few weeks ago an organization held its 18th annual meeting in Chicago, whose avowed object is "to promote the interests of bee culture." As this is the thing inquired for, have we need of anything further? The North American Bee-Keepers Society has identified with it some of the best men of our ranks. So

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far as I know, great harmony prevails in it, quite free from bickerings and jealousies, its meetings are profitable and highly enjoyable, and the reports thereof eagerly read by thousands who are not enrolled members. But the fact that among its warmest friends are found those who are raising the question as to some change in its character, shows that as constituted at present, it is not all that can be desired. Whether it be better to amend the present organization or to organize anew, in either case it is desirabe to discuss the matter thoroughly in conventions and also in the bee journals, and try to find out just what is wanted. At the Chicago covention Mr. Newman read a paper on the "Objects and Methods of a Thorough Organization of the Bee-Keepers of North America," suggesting a plan of operation. Let others give their thoughts. If the matter is fully talked up I do not see why we cannot be ready for action sometime during the present year, if indeed a feasible plan of action can be agreed upon at all. I do not feel competent to map out a plan and all I shall say is merely in the way of a starter. Perhaps it may help just a little to say what there is in the N. A. B. K. A. as now constituted that ought not to be. It ought not to be local. To a considerable extent it is comparing the last North American with the last Northwestern, both being held in Chicago. The N. A. had seven more members in attendance than the N. W., one more State represented, and one member from Canada. At the last meeting of the North American in your own State, besides the members from New York, there were present as follows: Ontario, 7; Pennsylvania, 4; Georgia, 1; Ohio, 1; Massachusetts, 1; fourteen in all. You can judge better than I how much this differed from a State convention. Does it not look a little like a farce to call this a North American Convention, in which more than six-sevenths of the States were in no manner represented? I remember hearing an old professor once say, "Yes, any fool can find fault, but the remedy is what we want." I have taken the fool's part, and leave others to find the remedy. I know that some New York bee-keepers are awake on this subject, and shall look with interest for a report of your discussions, as indeed I always do.

In discussing the essay Mr. Aspinwall said there was a cry for a better organization.

Mr. Root said something ought to be done regarding an organization. It should be a united and concerted body. The men who attend conventions are the successful bee-keepers. He heartily favored the movement, and thought that more enthusiasm should be aroused among the keepers.

Mr. Dickenson said he did not know about the International Convention being profitable to apiarists. Continuing he said he believed in bee-keepers holding and co-operating together, and thought it advisible for each man to keep the secret of success to himself.

Mr. Coggeshall favored a limited and secret organization.

Mr. Dickenson said he was opposed to the distribution of knowledge of honey to every one. He was willing to form a limited and secret organization.

Mr. Betsinger said he was in favor of a united and secret organization. All that is lacking is energy.

The following committee was appointed to prepare a suitable plan for a secret organization and recommend it to other state organizations: Messrs. Aspinwall, Dickenson and A. I. Root.

Mr. Edie, of Canada, favored an organization. He thought those excluded from the society would put upon the market an inferior class of goods.

Under the head of miscellaneous business the following new members were received: N. N. Betsinger, Marcellus; C. G. Dickenson, South Oxford; A. P. Slaten, Preston, N. Y.; Dr. Uriah Harmon, Gilbertsville; P. H. Elwood, Starkville; C. H. Goodspeed, Thornhill; W. E. Hastings, New York Mills; A. J. Evans, Camroden; John H. Taylor, Mohawk; Hiram H. Davis, Deansville, and H. N. Waters, Lowville.

Mr. Dickenson said the newspaper quotations in regard to honey were occasionally incorrect.

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Thomas W. Mulford said that the market reports were hard to obtain, and must be taken from dealers nearat hand.

Mr. Root said it was more difficult to dispose of honey than to raise it.

Mr. Foster said that bee-keepers should be given considerable attention by newspapers, and thought the bee-keepers should take interest and help papers.

On motion of Mr. Dickenson a recess was taken until 1 P. M.

At the afternoon session the attendance was still larger. Mr. Aspinwall moved to pass a vote of censure upon the Treasurer, I. L. Schofield, for not attending to his duties in presenting a report. He thought the dignity of the Association was assailed when no report was made.

Mr. Dickenson said the passage of such a motion would be out of place.

Mr. Aspinwall withdrew his motion.

Mr. Betsinger said a report could be obtained and printed in the minutes.

Election of officers being in order, Messrs. Root and Taylor were elected tellers.

The following officers were elected: President, W. E. Clark, Oriskany; Vice President, P. H. Elwood, Starkville; Secretary, George H. Knickerbocker, Pine Plains; Treasurer, C. M. Goodspeed, Thorn Hill.

Mr. Clark moved that all the officers of the association be required to present proper reports at the next meeting; carried.

President Clark then delivered his annual address. Among other things he said: Our annual gathering brings us together again after another year of labor and experience in our favored pursuit. Some have been fortunate in getting a good crop of honey and ought to have received a good price. Some of us have not been so fortunate, getting from nothing to perhaps one-half a crop. If the apiarists had done as they might, prices would have been good for the entire crop. A bee-keeper would profit by taking a paper devoted to the interests of bees, Keep posted on the markets, if you read nothing else. It will pay one hundred fold. We are more at fault. Read good literature devoted to bees. Bee-keeping has become national and its product amounts to millions of dollars. I am proud of my association in beekeeping. There is no body of men and women outside of the Christian church that excels us in being good citizens. Bee-keepers, as a class, are grand good fellows, but none too good. The field for improvement is open. This convention should take a step in advance. We should study how to market our products and raise honey at the least possible expense. The art of bee-keeping is a trade, not luck. There has been great advances in bee-keeping in the past twenty-five years. The hollow log and straw gums have given away to the moveable frame hives. We have now the extractor which in the hands of a skilled operator, will throw out its thousands of pounds of honey in a day, separating the honey from the combs and pollen, leaving the honey as clear as crystal. To-day honey is used in all parts of the earth. We have not reached the zenith of perfection yet. Look out for the cranks who guarantee that by your using something you will become rich at once; buy only such things that have been tested and found reliable. A nation was born in a day, but you cannot acquire all the knowledge necessary for a suecessful apiarist in that time. You must work hard and then succeed. Don't get the idea that you know more than the old veterans in this work. I wish to thank my friends for the many favors I have received from you while your presiding officer. When this meeting closes we shall go to our homes more efficient in this one chosen pursuit, and may the hand that formed the world lead you all the way through life to that better land.

"The Best Management of the Apiary to produce Comb Honey" was discussed. Julius Hoffman, of Canajoharie, who was to open the discussion, was absent. Mr. Dickenson said he was unprepared to speak upon the subject and begged to be excused.

Mr. Elmwood said the principle thing in raising comb honey was to get the bees. Everything hinges on this

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one feature. We have practiced making swarms queenless for several years and have had good results. There is no system where you can get as much comb honey as by this way. The principal drawback is requeening. When we first adopted this system we had black bees. It is not desireable to let a swarm have a young queen.

Mr. Betsinger agreed with Mr. Elwood, except that he preferred not to restore any queen.

Mr. Crocker said that he had good success with his methods, the Heddon hive. We ran the hive exclusively for comb honey. While working for comb honey the colony is confined to one section.

Mr. Betsinger said he would never be satisfied with the increase of one chamber.

Mr. Crocker said the past season was a poor one. He used 46 Heddon hives and 41 Quimby hives.

Mr. Goodspeed, of Thornhill, read an essay on "Artificial Fertilization." (Will appear later in MAGAZINE.)

Mr. Foster wanted to know whether it was profitable to use combs the second year.

Mr. Dickenson—Old combs are not worth using.

Mr. Foster said he had taken pains to notice the last year and found nine out of ten combs much inferior. He had met hardly one box that the honey was watery.

Mr. Betsinger said when all the water was not taken out of the sections it granulated.

Messrs. Aspinwall and Betzinger were added to the Committee on Constitution and By-Laws.

The following were named as a Committee on Resolutions: Messrs. Elwood, Taylor and Goodspeed.

EVENING SESSION.

At 7:35 P. M. the Convention met and discussed the subject, "How can we increase the demand for honey and maintain present prices?" L. C. Root, of Stamford, Conn., was to have opened the discussion, but owing to illness was unable to be present. He sent a paper, which was read. In it he advised a higher standard, the marketing of a prime quality, complete and perfect finish, and an entire revolution of the system of marketing, so that the goods should be handled by parties thoroughly informed in bee culture and directly concerned in the interests of both producer and consumer.

On the suggestion of Mr. Clark and the motion of Mr. Aspinwall, Mr. Root was elected an honorary member with all privileges of an active member.

The Committee on Constitution read its report, in which it presented the Syracuse sections. A discussion was had relative to changing section 2, which relates to the representation of delegates from other Associations. No change was made, however.

The Constitution was then adopted.

QUESTIONS AND ANSWERS.

Mr. Root, Chairman of the Committee on Question Box, read the queries which had been deposited therein, and answered them as follows:

1. Will a colony of bees swarm if there is only one queen cell, and the queen in that is dead? Very rarely.

2. Has anyone had experience with queens purchased in the Southern States and brought to this latitude, as to the progeny of such queens wintering as well as the native stock? I would like to hear their experience. A. I. Root says he has hundreds of them and can see no difference.

3. Is it best to do away with all natural swarming? Yes, if you can.

4. Receipt for making candy for winter feeding? Use A. I. Root's receipt.

5. Can a bee be frozen solid and brought to life again? No.

6. If you had to move a yard of bees before April 1, would you do it at once or before they fly? Before they fly.

7. Cannot there be a section of glassed honey adopted that will weigh not over a pound? It is impracticable for all markets.

8. Why is it, as a rule, that bee-keepers hold their honey back and not let the purchaser know what his actual crop is? This Convention has no means of knowing.

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9. Why should not the buyer know the quantity produced in the State as well as the producer know what the market price is? No reason why.

10. Can there not be a more careful way of grading honey in regard to quality? Yes.

11. Is the horizontal division of the broad chambers a success? It bids favorable.

12. If you had old or partly filled sections with comb would you put them on at the beginning of the honey flow or when the season was half over? Put them on during the best honey flow.

13. Has any one had any experience with hatching queen cells in an incubator? If so with what success? What are the advantages and objections and the temperature maintained during incubation? Yes; good success. Advantages are numerous and no objections.

14. How will bees winter in a temperature of from 30 to 40°? Winter rather cold.

15. Are shallower frames than we are now generally using of any advantage in the production of comb honey? Reports are conflicting.

16. If ten pounds of sugar and five of water are made into syrup, how many pounds will there be when the bees get it sealed into the hive? From five to twelve pounds.

The subject, "Marketing Comb Honey," was discussed at length, Mr. Betsinger opening the discussion. Other subjects were taken up under the head of miscellaneous subjects.

Mr. Aspinwall, of the Committee on Scheme for the Organization of an International Association, reported, suggesting that each Association in the United States and Canada send delegates to a general meeting, the place to be named by a majority vote of the associations entering the movement. These delegations to determine the method of organization and to report the same through the several bee journals. A further suggestion was made to form an exchange branch district from the Association, for the purpose of exchanging reports monthly, or as often as the members of their branch shall determine. It shall pay its own expenses, and its members shall have none of the privileges of the International Association unless paying dues. This was tabled until next day. A recess was taken until 9 A. M. next day.

THIRD DAY.

The bee-keepers met shortly after 9 o'clock. The Secretary read an essay from R. F. Holtermann, of Brantford, Canada. It was on the subject of quantity and quality of extracted honey. The writer said:

When a paper subject to be chosen by myself is assigned to me it must be with the expectation that those present at your meeting are not all experts, or that the discussion which follows may bring out information of value to members present and others who may read the reports of the convention in bee-papers. In my experience, and the experience of the Germans in particular, shade and ventilation form no mean factor in securing a good honey crop. At the present time, where the price of a colony in spring is no more than the price of the hive, its combs, and the number of pounds of stores required to winter a colony, to winter successfully and sell is no gain, and to lose a colony is a loss of the value of the stores given for winter purposes. Therefore, every pound of honey we lose through increase beyond what is absolutely necessary is mismanagement. What we must aim at is to manage our apiary in such a way that increase will be prevented by employing methods which will not diminish the honey yield. Now, there are methods recommended, and particularly so amongst beginners, which I hold all a positive waste of time and an injury to the colony. To break down queen cells to prevent swarming is such a waste; to use perforated metal for this purpose is also a waste of time and material, and I incline to the opinion that to resort to any method to prevent swarming, after the bees have received the impulse is also worthless, but would not be positive about this latter and leave the question with the Convention. What must we then aim at to prevent swarming, and how does it influence our honey yield? Pre-

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vent the very first step, namely, the impulse. How shall we do this? By shade and ventilation. I have at present trees of such a height and trained that the morning and late afternoon sun can strike the hive, and but little if any of the hot midday sun. I have ventilators in some of the bottom boards, and the lids of the hives are raised at the back to permit a current of air passing over the quilt which lies upon the combs. I want a shade board upon every hive, which shall be used with discretion. The ground is covered with grass, carefully kept from growing sufficiently long to prevent ventilation at the entrance; earth and sand cause more radiation, especially the latter, and are very trying on man and bee. All things considered—and I have had several years' experience with it—I want no high board fence to exclude every current of air from the yard. Then I find if a colony is left beyond a certain stage without supers to store honey and receives even though not yet indicated the swarming impulse, giving of room will generally not check this impulse, but they will swarm before filling such a super, and this must be carefully avoided. Give room as required. This can be done more easily whilst working for extracted honey than comb. I use the 8-frame Langstroth and with good colonies and during a good flow use two full supers, allowing honey always to ripen or be capped. The first super is raised and the second put between it and the brood chamber. I use perforated metal; care should be taken to have a bee space on both sides of the board. Colonies not so good extract four combs out of the super, leaving the remainder until ready, when they are extracted, leaving the first four, and so on. In this way I have had very good success in preventing much increase and securing a larger yield per colony than my neighbors. Last summer my strongest colony gave me 270 pounds of honey with no attempt. I have thus far handled 25,000 pounds and know what a vast difference there is in honey properly and improperly taken.

The topic, "Ventilation of Bees in Winter Repositories," was taken up, P. H. Elwood, of Starkville, opening the discussion. He treated the subject in an able manner, and many of his suggestions were considered of much value to those present.

In reply to a question asked by Mr. Aspinwall, Mr. Elwood cited instances where the best success attended the wintering of bees in cellars heated by a furnace.

Mr. Root stated that there seemed to be some discrepancy relative to the dampness of these repositories. He cited two instances where springs in the cellars aided materially in the wintering of bees.

The subject was further discussed by Messrs. Dickinson, Betsinger, Goodspeed and others relative to the value of a spring in cellars where bees are winter stored; method of ventilation and construction of repositories. Several of the members explained their methods of hive ventilation and storing by which they attained the best results.

The report of the Committee on drafting a scheme looking to the organization of an International Association was taken from the table. Mr. Aspinwall, Chairman of the Committee, explained the object of the resolution or scheme. It was discussed at length by the members, the majority of whom were in favor of the exchange branch, but some thought the International Association a huge undertaking.

Mr. Elwood advocated the interchange of reports of amount of crops, etc., and asked if the bee industry was not of sufficient importance to warrant a demand being made on the Agricultural Department for a report of the condition of the honey crop, say, for instance, in May or June, as to how the bees have wintered, and in the fall how large the crop was.

Mr. Dickinson thought there would be too many obstacles in such a demand. He believed that but few of the bee-keepers would care to give such information. He suggested that the Secretary ask the Secretary of the North American Society to notify all the associations in the United States to send delegates to the next Convention.

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After further discussion the report of the Committee, which had been declared adopted, was again brought before the Convention by the reconsidering of the vote, and this time was referred back to the Committee for revision. Mr. Elwood was added to the Committee.

The Committee retired for consultation, and the topic of "The Coming Bee" was taken up.

Mr. Betsinger believed the coming bee had arrived in the shape of the Italian hybrid, built on a foundation of pure Italian blood, mixed with black.

Mr. Goodspeed said that producer almost always ordered dark colored queens.

A discussion followed on the subject of breeding and mating queens.

The report of the Committee on scheme for the new Association was read, adopted, and the Committee discharged. The report reads: Your Committee would suggest that this Association shall resolve itself into a Honey Producer's Union for the purpose of gathering statistics of the wintering of bees and the honey crop throughout the United States. Resolved, That the duties of the Secretary of this Association shall be the forwarding of suitable blanks to reporters, so that they shall report on the first day of May, June, July, August and September from every honey-prodccing State. No State to have more than six reporters, who shall fill out and send by return mail to the Secretary. He shall have printed and mailed to members and the reporters by the 10th of each month. Resolved, That the Secretary keep account of his time involved in this work and report the same at the next Convention. He shall be empowered to draw upon the Treasurer for funds necessary to carry out the work.

Mr. Elwood said that Mr. Aspinwall had generously offered to pay any deficiency which might be caused by the carrying out of this plan.

A recess was then taken until two P. M.

CLOSING SESSION.

The Committee on Resolutions submitted resolutions thanking the proprietor and attaches of Bagg's Hotel for courtesies extended; *The Observer, Press* and *Herald* for their unusually accurate reports of the Convention; to visiting apiarians for their attendance and attention paid, and to John Aspinwall for his generous offer to defray the deficiency caused bythe organization of the new Honey Producers' Union. Adopted. The convention then adjourned.

Honey Plants in Texas.

Editor Bee-Keepers' Magazine:

SIR.—At your request I will make that honey-plant experiment report:

California white sage a failure; shall try again. Sown too late in the spring.

Simpson, or figwort, furnishes honey all day; spider plant furnishes honey only in the morning. Blooms a long time.

Alfalfa, or California clover, blooms a long time; the bees worked on it very strong. I think it will some day be the wealth of Texas, as it is of California.

Bokhara bee clover furnishes a great deal of honey. Sow two years in succession, as the roots die after blooming. D. GROSSMAN.

Ferrell, Tex., Dec. 25, 1887.

[Here is another model report—concise and to the point. Here is valuable information condensed into a few lines. Writers frequently forget that readers of a paper seldom care about what they (the writers) individually believe, and statements of that nature do not convince; but if you give them *facts and truths*, the first thing you know they will believe as you do, and that is what you are after, isn't it?—ED.]

I am very much pleased with your MAGAZINE, and hope you will succeed.

Yours truly,

J. F. BUCKLEY.

Utica, N. Y.

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Michigan State Bee-Keepers' Convention.

(*Continued from page 52.*)

Mr. T. F. Bingham, of Abronia, Mich., then read an essay on,

How to Improve Our Bees.

To the casual observer, as also to the young student, this subject is one of almost illimitable scope, presenting vast possibilities; and while considered as in a certain sense parallel and analogous to the improvements realized by the breeders of thoroughbred horses, cattle and sheep, the almost certain realization of the enthusiastic bee-keeper's brightest dream lends a perpetual charm. Many presumably well-balanced and conservative bee-keepers have devoted much time, money and practical endeavor to the ever charming and paramount wish to enhance the practical economic value of the honey-bee. While the success so far unattained in no way narrows or circumscribes the field of enthusiastic vision, the practical results attained serve to modify in a certain sense the immediate hope of marked improvement.

It would not be safe to say that no gain had as yet been made in the direction of color, disposition and industral value of bees. Yet it is strictly safe to venture the assertion that, while we have many modifications and crosses of races, these modifications do not, in a practical sense, justify the hope or stimulate the belief that material and marked improvements are possible from the mixing of races of honey bees.

If, as now seems probable, in the near future, those bee-keepers wishing to realize the best home market, and the surest return for their product, should adopt the plan of part comb and part extracted honey, little effort will, in the light of past successes, be bestowed upon experiments to improve any mixture of Italian bees, whose queen and workers will not allow of the rapid manipulation of the combs and hive without running.

However much may have been hoped and dreamed in regard to the Utopian honey-bee, "Apis Americana," one great fact, practical and demonstrable, calls us back from Wonderland, and forces the conviction that, while our standard of excellence is the Ligurian or Italian bee and her near crosses, "Apis American," will needs have more than a pedigree to install her in the heart of the practical bee-keeper. T. F. BINGHAM.

After the reading of the above essay, it was discussed as follows:

Prof. Cook—The two great points upon which we need to work are to improve our bees and our honey-plants.

L. C. Whiting—I once had a colony that built but few brace-combs; by rearing queens from this queen, I secured a strain of bees that built almost no brace-combs at all.

Mr. John Rey, of East Saginaw, Mich., then read a paper on,

Marketing Honey at Home.

I will give only my own experience in a home market, having never sent any honey to outside markets, for the simple reason that I have found ready sales in my home market.

Advertising is the life of trade, and the same holds good in bee-keeping. Up to four years ago I could not ways dispose of the honey that I produced the season before, and I would have some old honey on hand when new honey was coming in. I found that something must be done in order to get my honey before the consumer, and I adopted the plan of advertising. I did it in this way.

I noticed advertised in the *American Bee Journal*, a leaflet called "Why Eat Honey," and also a pamphlet on "Honey as Food and Medicine." I thought that would be a good way to work up a home market; so I sent for several hundred copies of each, and with every package of honey I sold, I would give one of these "leaflets," and at the same time I would stamp my name on the leaflets, and for the comb honey I could stamp it on the sections. For extracted honey I would always label the glasses. I was sur-

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prised to see my honey sell so fast. My honey was all gone before the new honey was coming in, and I had to do something in order to hold my trade, not having been able since to produce honey enough from my own bees to supply my home market; so I have to buy honey to fill my orders until my new honey is ready the following season.

In buying honey I always make it a point to buy honey from my neighbor bee-keepers, providing that I can get it at some profit; of course the profit is small. They keep posted on the market price, and they expect to get nearly as much for their honey from me as I would get myself. But even so, if I get their honey at a small profit, it takes that honey off the market, and gives me a chance to bring mine on, with the prospect of better prices in the future.

I have often thought that if I had enough money, I would buy all the honey from my neighbor bee-keepers, and from farmers that produce little honey to sell. For instance, in Saginaw County I would start a honey house, and the producer of honey would bring his honey to me, and the retailer and consumer would look to me for their honey. But being a poor man, I will have to drop that idea and do the best I can; but if such a live man could be found in every county throughout the country, with plenty of money and experience in the marketing of honey, I think that bee-keepers at large would get better prices for their honey.

Why, the farmer knows in the morning before he starts to the city with a load of wheat, what he is going to receive for his wheat, by seeing the prices in the daily market reports. He takes his wheat to the flour mills, gets his cash and returns home happy. The retail grocer, and the consumer, get their flour from the flour mills; and if the producer of honey could bring his honey to the "honey man," as you would call him, why, the retail grocer and consumer would look to the honey man for their honey.

As to putting up honey in marketable shape, I have nothing new to offer to the experienced honey producer. It is from them that I have taken my lesson—by attending the bee conventions and reading different bee books. But to the inexperienced bee-keeper I would say: Never let a section of honey go out without your name on the section; or if it is extracted honey, always put up the nicest and best honey in glass packages, and put your name on it, on a nice label. By putting up honey in glass jars, the consumer can always see what he is buying, and, besides, the jar is of some use after the honey is consumed. JOHN REY.

After its reading, Mr. Rey explained that he prepared it hurriedly, and neglected to mention that he went among the grocers and bought up wax at 25 cents per pound, melted it and molded it in small cakes, and then sold it back to the dealers for 30 cents per pound, the dealers retailing it for five cents a cake, eleven cakes weighing a pound.

A. I. Root—I wish to say for the encouragement of Mr. Rey that I have never seen finer displays of honey in stores than he has here in the groceries. I wish we could have them photographed.

T. F. Bingham—The best use that can be made of poor honey is to make it into vinegar. A pound of honey will make a gallon of vinegar. At about 45° to 50° of temperature will make vinegar.

The Committee on Exhibits reported the following:

Eden's comb-foundation fastener, Eastwood, Ont.

Betsinger's crate, with wire-cloth separators, and paste-board shipping boxes.

Bingham's smoker and honey knife.

W. Z. Hutchinson, case of very fine comb honey.

President Hilton, four samples of extracted honey — basswood, maple, willow-herb and raspberry

H. D. Cutting, fine collection of extracted honey, all under the same treatment, one part being candied and the other not; also an entrance feeder.

Mr. Soper, sections, and VanDeusen's flat-bottom foundation.

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Dr. L. C. Whiting, sample of very fine honey vinegar.

Sections and separators from the Berlin Fruit Box Company.

Dr. Tinker, sections, perforated zinc, and a queen cage.

O. J. Hetherington, machine for putting together four-piece sections.

John Rey, fine collection of extracted honey; also solar wax extractor, steam extractor, Stanley's honey extractor, with uncapping can attached; also foot-press foundation fastener.

The Committee on Resolutions then reported the following, which were unanimously adopted:

Resolved, That the thanks of this convention are hereby gratefully tendered the business men of East Saginaw for the generous and agreeable way in which they have ministered to our entertainment.

Resolved, That we heartily appreciate and hereby express our gratitude to the officials of this city for the hearty welcome extended, and for the hall provided us for our sessions.

Resolved, That we turn our thanks to the managers of the Sherman House, for the bountiful way in which they have provided for our physical wants, and for the reduction in rates granted.

Resolved, That our thanks are due, and are hereby extended to resident bee-keepers, for their successful efforts to render our sessions pleasant and profitable.

The following letter was read. It was an answer to me asking whether statistics of the bee-keeping industry could not be collected by the authorities at Washington.

U. S. DEPARTMENT OF AGRICULTURE,
WASHINGTON, D. C., Nov. 26th, 1887.

George E. Hilton, Fremont, Mich., President of Michigan Bee-Keepers' Association.

SIR:—Your letter of the 21st inst., addressed to the Commissioner of Agriculture, has been referred to me for answer. Our monthly reports are made up from information gathered from a corps of crop correspondents in each agricultural county in the United States, and with such a wide range it is only practicable for us to report regularly upon the leading farm products. We frequently make outside investigations relative to the condition and extent of special rural industries, and realizing the importance of bee-keeping, would be glad to give it the attention it deserves. Our regular correspondents, however, are ordinary farmers, and but few would be able to give any information relative to the present condition of apiculture. It would be necessary to send directly to those interested in or suggest where I might obtain, a list of bee-keepers, comprising one or two names in each county where the industry is of any prominence, aud also give the points, which in your opinion, such an investigation should cover? Very respectfully,

J. R. DODGE, *Statistician.*

Secretary's Report for 1886-87.

Twenty-three members report:

Number colonies in spring	1,226
" " fall	1,908
" pounds wax	372
" " comb honey obtained	48,983
" " extracted "	16,352
" queens sold	4,142
" colonies wintered in cellar	475
" " " on sm'r stands	704
" " in bee house	47

One member, with 250 colonies, sold 4,000 queens, but obtained no honey.

Received in cash from members	$13 00
Expenses of meeting	12 50
Balance on hand to date	50

Meeting at East Saginaw, 1887:

Received in cash from members	$14 50
Expenses of meeting	11 95
Balance on hand Dec. 8, 1887	$ 3 05
Number members reported	27
" colonies in spring, 1887	1,902
" " fall, "	2,488
" pounds bees wax	778
" " comb honey obtained	29,813
" " ext. "	8,185
" queens sold	2,234
" colonies wintered in cellar	1,027
" " " on sm'r stands	1,309
" " " in bee house	152

One member, with 250 colonies, reports 2,000 queens sold; no honey obtained.

In closing this report of our convention, permit me to say it is impossible to give an account of all the sayings and doings for the want of space. Our conventions should be more generally attended, for the many little details brought out, that never appear in print, well pays those that attend, and we often hear the regrets of those unable to meet with us. Convention adjourned to meet at Jackson, December, 1888.

H. D. CUTTING, Secretary.

The subscription price of the *Western Rural and American Stockman*, of Chicago, has been reduced from $1.65 to $1.50. By a special arrangement with the publishers we can offer the *Western Rural* and the BEE-KEEPERS' MAGAZINE for $1.75, or we will send the *Western Rural* for $1.40. To each one subscribing to the *Western Rural* through us, we will send a certificate of membership in the Farmers' Supply Co., of Chicago. This certificate will enable the holders to obtain goods at reduced prices. Satisfaction is guaranteed by the *Western Rural*.

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BEE-KEEPING AND HORTICULTURE.

President Hilton's Annual Address at the Michigan State Bee Keepers' Convention.

Brother and Sister Bee-keepers of the State of Michigan :

We have assembled here with our friends, the Horticulturists, at our 21st annual convention, to consider that which pertains to the best interests of our pursuit. I shall not occupy your time with an exhaustive address, for the program is full and very complete, and our time is short at best to consider the important subjects which will be presented.

I am here as a member of this society to assist as best I may in throwing light on the topics brought before us. I take it as an expression of good will and great generosity in those who have arranged the preliminaries of these meetings that everything for the comfort of us all has been so amply provided and that all arrangements are so thorough and complete, let us see to it that we endeavor to perform our part in as faithful a manner as our committee have done.

It is with pleasure and pride that I congratulate this society on attaining its majority, and while the last year of our second decade has been discouraging from one point of view, from another, we start on our third with most flattering prospects. The dearth of honey has not only established paying prices, but has sounded the death knell of the "Wiley lie" and all advocates of "manufactured honey," and to me the prospects were never brighter.

Yes, we have reached a crisis in the history of bee-keeping which must be acknowledged to be of national importance. The question no longer remains "Shall we commence at all" or "Shall those of us who are already engaged in it continue?" I now say, without fear of successful contradiction, that the possibilities in bee-keeping have not yet been reached.

Need I say less of Horticulture? In the words of Eugene Secor, "The true horticulturist, like the successful bee-keeper, is an enthusiast. I need not remind any who plants trees and grows fruits of the genuine pleasure that thrills the soul when nature responds to his intelligence, thought and careful direction? He lives in a world of his own. He needs no other intoxicant to complete his happiness. Horticulture is one of the fine arts; it requires the skill of a master. It is just as impossible for the thoughtless, brainless clodhopper to reach the highest round in the ladder in propagating fruit as it is for him to appreciate it after it is grown. But after all man's skill in planting, after ransacking the earth for improved varieties, after propagating, grafting and hybridizing, he must rely mainly on Nature's methods of fructification. The favoring winds and industrious bees are needed to fertilize the bloom to insure a harvest of fruit. As a means of accomplishing this end, there is no question but that the bee is of great service to the grower of fruits; no other insect is multiplied in such vast numbers so early in the spring when their agency is so much needed to fertilize the orchards and small fruits. If the winds were the only means of carrying the pollen from flower to flower, how often would perfect fertilization fail from too much or too little wind during the brief opportune when the bursting buds are sighing for the life-giving dust from the neighboring flowers.

Not only is honey provided in the delicate chalices to entice them, but the pollen so essential to the plant (and just as essential to the bee in furnishing the proper food for its young) is placed in close proximity to the nectar, so that in getting either the bee is unwittingly carrying the dust from flower to flower, working out the wise plans of Providence as relates to plants, and catering to man's pleasurable taste at the same time. The drop of honey is placed then in the flower not because it is needed to perfect the flower or fruit, but to tempt the bee to brush his hairy legs against anthers and distribute the golden dust. So the bee introduces itself at once to the horticulturalist as his friend. The latter ought to meet it half way and

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acknowledge its two-fold service. It does him a service while on its daily rounds in search of food for itself and young, and again by storing up for his benefit the liquid sweets which it does not need itself, and which ungathered vanish like the morning dew, like the Manna which the Israelites ate of. The ungathered portions melted "when the sun waxed hot."

What, then, is there to hinder these two vocations from going hand in hand since each is helpful to the other? They ought at least to be on friendly terms. Each furnishes inducements for the other to exist.

But, aside from these considerations of the healthful diversions and pleasing variety of mind, and returning again to the utilitarian side of the question, the horticulturist will find it profitable to pursue the study practice of this delightful branch of Entomology. The habits and instincts of this "pattern of industry" are ever interesting and the business quite as remunerative as raising tender fruits in an "iron-clad climate." This pursuit once entered upon possesses charms of its own. No other stimulus is needed to follow it than the fascination of its own creations. A great deal has been said about bees injuring fruit — some fruit-growers having charged that they puncture the ripe grapes, suck the juice and destroy the crop. But from the physical structure of the bee this is said to be impossible by scientific entomologists. It has no jaws like the hornet ; it is made to suck, not to bite, and on close observation, and after repeated experiments, it has been found that where bees are discovered helping themselves to ripe fruit that the skins had been ruptured by the weather or from over-ripeness, or that hornets or wasps, or birds, had first been the depredators. After the skin has been broken from any cause, if there is a scarcity of honey, the bees, always anxious to be doing something, will endeavor to get a share of the plunder. Therefore, as to bees injuring fruit, I as their attorney, shall claim to the jury that the charge is not proven.

In dismissing this subject, which to the lover of fruits, flowers and bees is always a source of infinite delight, I cannot refrain from quoting a few lines from "The planting of the Apple Tree," by the venerable sylvan poet, our own Bryant, who saw so much of future hope and promise, as he sifted the soft mould about its tiny rootlets :

"What plant we in this apple tree?
Sweets for a hundred flowery springs
To load the May-winds' restless wings.
When from the orchard row he pours
Its fragrance at our open doors
A world of blossom for the bee."

GEO. E. HILTON,
Fremont, Mich.

Give Proper Credit.

Several bee papers have copied the report of the Chicago convention from the *American Bee Journal* without giving any credit for it. As we paid the reporter for attending the sessions and writing out the proceedings, it is our private property, and any periodical which copies it should, in common honesty, give the *American Bee Journal* proper credit for it. If it does not wish to do that, then let it send a reporter to the convention and get it in a legitimate way.

[Mr. Newman is entirely correct, but what else can we expect from a people of such piratical tendencies in the literary line. We do not hesitate to steal the emanations of foreign literary genius and why not use another's reports. For shame! It is high time some of our editors had a little honor instilled into their composition. There is one excuse, many of them were "devils" when young and the ink still sticks to their moral nature, if it does not to their hands.—ED.]

I could not think of keeping bees without the MAGAZINE.

J. L. SHAUAR.
Jan. 9, 1888.

THE BEE-KEEPERS' MAGAZINE is *practical.* H. T. COOK.
Jan. 7, 1888.

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The North American Bee-Keepers' Society.

(Concluded from page 57.)

The essay of Mr. D. A. Jones, Beeton, Ont., is as follows, and is on

Establishing Out Apiaries.

This is the question that has been assigned me by the Secretary, and it is one which is receiving considerable attention just now, as many engaged in apiculture are increasing their colonies until they have, frequently, more than they can afford to keep in one apiary. Then the questions arise: What should they do? Should they sell them off, or start "out apiaries?"

There are some localities where 500 colonies might be kept with success, and there are others where 100 would overstock them. I consider from 100 to 200 colonies as many as is profitable to keep in the average apiary. In establishing out apiaries 50 colonies would make a start, but I would recommend 100, as no more trouble need be taken to manipulate them. These would contain 200 colonies in the fall, which might be divided again; thus your apiaries, if you double your colonies, would double every year. But counting mishaps, sales and losses, perhaps we might more reasonably expect to double our colonies every two years. This, of course, depends largely ly upon the practice of the apiarist. One man is required at each out apiary during the season, which, in this country, varies from four to five months.

From my home apiary, I located one about 1½ miles to the northwest; the next about four miles to the northeast; next, seven miles to the northeast; then one five miles north, one six miles northwest, and one ten miles northwest, with sometimes smaller ones between. From personal experience I am satisfied that in good localities from two to three miles apart is far enough to have them. I have had as good results from the closest apiaries as from those furthest apart, and that, too, when there were over 200 colonies in each.

If the locality were suitable, I should prefer to place them so that I could visit all the apiaries by driving the shortest possible distance; that is, five or six apiaries might be placed around a central one, or in a way that one could drive or take them all in in one route. Mine, unfortunately, are not so placed, and it gives me five or ten miles of an extra drive to take them all in, but as the locations suited me better, I thought it would more than overbalance the extra cost of the journey to place them as I did.

Each apiary should have a practical man or woman in charge. I have frequently had students look after them, but it pays much better to have assistants with at least one year's experience, as the foreman cannot manage to go around to each apiary more than once per week, and sometimes scarcely that, especially if he has to give a day to each apiary, to instruct the one in charge. The assistant in charge has spare time enough on his hands to keep the yard in nice condition, besides preparing sections, putting them on, keeping the hives painted, and making new ones when required. I never expect him to do all the work during the honey-flow, but give him assistance in extracting. The more assistance that is required for this purpose, the better the apiary pays.

When extracting I use little boys and girls for carrying the combs to and from the hives to the extractor. Two of them, a little larger and a little practiced, do the uncapping and extracting. I have also had boys from ten to twelve years old that could put the combs back in the hives very well after they had been extracted. This class of labor, with us, is very cheap, and there is generally plenty of it in the neighborhood of every apiary that can be got when required, and the youngsters think it as good as a holiday to get an opportunity to work in the bee-yard.

With a good, practical foreman to visit the yards, and see after them, as much can be realized from the "out apiaries" as from the "home" ones. Very often they bring in better returns, because they are selected on account

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of their fitness, while the home apiary may only be tolerated because of its being your "home," rather than the most favorable place for an apiary. Almost any number of apiaries may be managed in this way if the owner is thoroughly practical, and will devote his entire attention to the business, or if a good, reliable foreman and trusty students can be secured, or better, those who have had, say, a year's experience.

I am satisfied that after one has mastered the business, and understands it thoroughly, if his surroundings are suitable, he is only fooling away his time with one apiary, as he can manage several without any more trouble than is required to manage one. He would require a suitable rig, so that in driving to each apiary he could take such supplies as he might require, and in returning could bring any honey that there might be on hand.

I have parties offering me the privilege of establishing apiaries on their premises without any charge. One man, where I had an apiary for over ten years, sold his place and moved away. He has asked me to come and establish one on his new place, free of charge, knowing as he does the benefit that the clovers, fruit trees and vines receive from the fertilization of the flowers by the bees. The highest that I have ever paid is $25 a year for bee-houses or a cellar to winter in. All the ground that is required is a quarter to a half-acre to place the bees on. From $5 to $10 a year is the usual rent, where a charge is made at all.

Even though a person has a sale for all the extra colonies of bees he can spare, it will pay him to have at least one or two out apiaries, because if increase is the principal object, the sale of bees will doubly repay the interest on capital invested. Any honey that they may stow away more than is required, can either be extracted, or the filled combs may be kept for future use, as it is desirable to have some such combs on hand to save feeding colonies that are run more exclusively for honey. I believe that all such apiaries should be managed for both honey and increase, unless the sale of bees is almost impossible at a very low figure, in which case increase is a thing not so much to be desired. D. A. JONES.

The committee on exhibits reported that the following articles were on exhibition :

Honey cans and labels, and malleable iron honey-gates for honey-extractors, exhibited by E. L. Goold & Co., Brantford, Ont.

Samples of linden honey and clover honey—R. F. Holtermann, Brantford, Ont.

Reversible hive and section-case; and a machine for making T-tins—E. S. Armstrong, Jerseyville, Ills.

Adjustable division-board fixture for shipping bees, and a device for feeding and packing bees—J. B. Hains, Bedford, O.

Comb honey—Edwin Hubbard, Oil City, Wis.

Comb honey and extra funnel for bee-smoker—T. S. Bull, Valparaiso, Ind.

Samples of bee-supplies—Berlin Fruit-Box Company, Berlin Heights, O.

Machine for folding sections—Wakeman & Crocker, Lockport, N. Y.

Melissa honey-plant—A. C. Tyrrel, Madison, Nebr.

Super for surplus honey—H. W. Funk, Bloomington, Ills.

Crate of comb honey in patent paper boxes; samples of the patent paper boxes, and samples of sections with foundation—N. N. Betsinger, Marcellus, N. Y.

Samples of honey and honey-plants, and a photograph of the honey exhibit at the Tri-State Fair at Toledo, O.—Dr. A. B. Mason, Auburndale, O.

Seed of the Chapman honey-plant, and a sample of honey from the same plant—H. Chapman, Versailles, N. Y.

Reversible hive—James Heddon, Dowagiac, Mich.

Samples of comb and extracted honey, and an improved section-case—Joshua Bull, Seymour, Wis.

On motion of Dr. A. B. Mason, it was voted that the thanks of the Society ty are due, and are hereby tendered, to the Commissioner of Agriculture for his efforts in behalf of the bee-keeping industry, and for establishing an Apicultural Station near this city for experimental work.

The convention then adjourned to meet at Toledo, O., at the call of the Executive Committee, next year.

W. Z. HUTCHINSON, Sec.

I certainly think very highly of the BEE-KEEPERS' MAGAZINE.

C. E. BARNES.

Tallmadge, Ohio.

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MR. ARTHUR C. N. TODD,

Fellow of the Royal Geographical Society, and Associate of King's College, London, England, was born at Sandymount, Dublin, Ireland, on the 25th of February, 1843.

In early life Mr. Todd was engaged in the dry goods business, afterwards representing the large firm of Pim Brothers & Co. as the manager of their branch house in London; in 1873 he made a flying visit to the United States in their interest.

He first became interested in Apiculture in 1870, and from that time he pursued the study of the bee and its products with ardor, upon both scientific and practical lines. During his travels in France, Italy, Switzerland, Germany and Algeria, he became acquainted with most of the prominent bee masters of those countries, especially with M. George de Layens, the famous Frence apiculturist and author, between whom and himself a warm friendship existed and they were correspondents till quite lately.

He commenced bee-keeping for a livelihood at Blidah, in Algeria, in 1877 and about that time he first imported comb foundation and foundation machines from Mr. A. I. Root, into France and Algeria.

At the Paris Exhibition in 1878 he took the Large Diploma for Bees, Hives and Honey.

Kept bees in Rambouillet, a small village near Paris, in 1878-9.

At the Ville de Beauvias Exhibition, in 1879, he gained a gold medal, and and at the Amiens Exhibition, same year, two silver medals.

Mr. Todd returned to America in 1880, and joined the Philadelphia Bee-Keepers' Association in 1882, of which he was elected Vice President in 1884 and re-elected in 1885. He was also a member of the New York State Bee-Keepers' Association and Vice-President for Pennsylvania of the North Eastern Bee-Keepers' Association.

He made extensive displays of Bees, Hives and Honey at the Pennsylvania State Agricultural Society's Fairs in Philadelphia in 1884-5-6-7, taking 11 silver and bronze medals and numerous cash prizes and Diplomas. At the Burlington County Agricultural Fair, at Mount Holly, New Jersey, 1886, he was awarded a medal for honey manufactures.

In 1886 Mr. Todd established an Exhibition Apiary in the Zoological Garden, Philadelphia, which has proved highly successful, thousands of visitors observing the bees at work in glass hives, and the general manipulations in practical bee-keeping. This is the only exhibition apiary in a public garden in the United States.

He died on February 11, 1888, at his home, 2122 North Front Street, Philadelphia, after a short illness, from Typhoid Pneumonia. He was buried with Masonic Rites, at Mount Moriah Cemetery, Philadelphia, February 16.

Catalogues Received.

R. E. Smith, Apiarian Supplies—Tilbury Centre, Ont., Can.

Jno. Nebel & Son, Bees and Supplies—High Hill, Mo.

John W. Akin, horses—Scipio, Cayuga Co., N. Y.

The Russell & Morgan Printing Co., catalogue of playing cards Cincinnati, Ohio.

G. W. Marshall, Poultry and Bees—Davenport, Iowa.

Vaughan Seed Store, Seeds and Plants—Chicago, Ill.

Frank A. Eaton, Apiarian Supplies—Bluffton, O.

C. Van Deusen & Son, Foundation, Sprout Brook, N. Y.

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Our Clubbing List.

We offer the following unusual Clubbing List. We consider them *first-class* periodicals, and we cannot too highly recommend them :

	Regular Price.	Price with Magazine.
The Farmers' Magazine,	$ .50	$ .85
The Poultry Keeper,	.50	.85
The Practical Farmer,	2.00	1.75
Agricultural,	1.00	1.25
Prairie Farmer,	1.50	1.65
American Agriculturist,	1.50	1 65
Scientific American,	3.00	3.05
Century Magazine,	4.00	4.00
The Independent,	3.00	3.00
American Horticulturist	1.00	1.25
National Journal of Carp Culture,	.50	.80
Orchard and Garden,	.50	.85
Tuttle's Photograph called "Medley of 120 Prominent Bee-Keepers,"	1.00	1.25
The Poultry Monthly (new subscribers)	1.25	1.45
The Western Rural	1.50	1.75
Harpers' Monthly	4.00	3.75
" Weekly	4.00	3.90
" Bazar	4 00	3.90
" Young People	2 00	2.25
St. Nicholas		3.25
Photographic Times (weekly)	3.00	2.85
Photographic Times (monthly)	2.00	2.00
Planter's Guide, without premium	50	75

Reviews.

We are in receipt of the first number of *Rural Life*, a monthly agricultural magazine published at Marshallville by our enterprising friend Christian Weckesser. It shows care in its get-up and should certainly succeed. The price being but 20 cts. per year, permits every one to enjoy its privileges. Long life to it.

THE HONEY MARKET.

NEW YORK.

White clover, 2 lb. sections, 12 to 14c.; 1 lb. sections 15 to 17c., with slow demand. Buckwheat, 1 lb. 11c.; 2 lb., 10c. Goods moving very slow. Can guarantee these prices only for extra fancy goods.

THURBER, WHYLAND & Co.

Feb. 24th, '88.

CINCINNATI, OHIO.

There is a quiet but fair demand for honey of all kinds. Extracted honey brings 4@9 c. a lb. on arrival. Demand exceeds arrivals. The demand for comb honey is rather tame. It brings 16@20 c. a lb. for best in the jobbing way. Demand is good for beeswax, which brings 20@22 c. a lb., for good to choice yellow, on arrival.

CHAS. F. MUTH & SON.

Dec. 12, '87.

PHILADELPHIA.

White clover, fancy, 1 lb. combs....17 @ 18
" " " 2 lb. " ....14 @ 16
Buchwheat " 1 lb. " ... 12 @ 13
" " 2 lb. " ....10 @ 11

Common or dirty and leaky, must sell somewhat lower.

Extracted per lb. 6@8c—small glasses preferred.

Choice yellow wax per lb. 22 @ 23c.; inferior 20 @ 21c.; white wax 26 @ 28c.

PANCOAST & GRIFFITHS.

Nov. 10, '87.

DETROIT.

Best white comb honey in one pound sections continues to be quoted at 18@20c. Extracted 10@11c.

Beeswax—22@23c.

M. H. HUNT.

Bell Branch, Jan., 1888.

CHICAGO.

The business during the past month in honey has been light, only taken in a small way. The prices remain at 18@20c., for the best grades of 1lb section; 2lb sections or thereabouts 15c. The larger shipments are from the East. Extracted honey 7@10c., for white grades; 6@7 for dark. Beeswax 23.

R. A. BURNETT,
161 South Water street.

WANTS.

Advertisements in this column not to exceed 8 lines, 5 cents per line for each insertion.

WANTED—To sell bees in improved controllable hives with one pound sections, feeders, &c. B. H. Franklin, Sturbridge, Worcester County, Mass.

Mention this Magazine when answering advertisement.

WANTED—Agents to sell the great Japanese bite and sting medicine. Sample box by mail, 25 cts. Cures bee stings and spiders' bites, etc. Address E. G. Dimon, box 20, Sheldon, Vt.

Mention this Magazine when answering advertisement.

WANTED—A purchaser for pure Italian Bees in best hives, double-walled in winter, eight frames 12¼ x 12¼, at $5 per colony; or same in light, strong shipping boxes, 75c. less. Liberal discount on large lots. Dr. G. W. Young, Lexington, Mo.

Mention this Magazine when answering advertisement.

For any good man who will purchase the **whole** Apiary—as I do not want to trouble with small sales, under the circumstances—I will make a very desirable project for some man to enter into my work.

REV. W. DUNBAR,
Penn Yan, N. Y.

Mention this Magazine when answering advertisement.

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COLUMBUS
BuggyCompany

COLUMBUS, OHIO.

MANUFACTURERS OF FIRST-CLASS

BUGGIES, SURRIES,
Phaetons,
Park Wagons, Light Carriages.

Our work is Fully Guaranteed and absolutely reliable.

BEST For Livery Service!
For Family Service!
For Pleasure Driving!

POINTS OF SUPERIORITY.

Superior Material and Workmanship,
Fine in Finish,
Easy in Riding Qualities,
Unsurpassed for Durability,
Cheapest for Quality of Goods in the World.

Mention this Magazine when answering advertisement.

THOS. G. NEWMAN & SON,

—DEALERS IN—

BEE-KEEPERS' SUPPLIES.

Illustrated Catalogue sent free.

923 and 925 West Madison St., CHICAGO, ILLS.

Mention this Magazine when answering advertisement.

PRACTICAL HINTS TO BEE-KEEPERS'

—SENT FREE—

Address, AMERICAN APICULTURIST,
Wenham, Mass.

Mention this Magazine when answering advertisement.

300 COLONIES OF ITALIAN BEES for sale at **$5.00**, in movable frames.
G. H. ADAMS,
Troy, N. Y.

Mention this Magazine whenanswering advertisement.

FREE TO POULTRYMEN.

Guide to Successful Poultry Keeping, A complete Poultry Book, giving the fullest information concerning this profitable pursuit. ILLUSTRATED HANDSOMELY. Not an advertising circular, but a careful compilation covering the entire subject, **SENT FREE** to all sending only 8 cts. (½ price) for our peerless 60 c. Monthly **3 months** on trial. We are determined to introduce to you a home journal that you will like.

The Rural Call, Columbus, O.

Mention this Magazine when answering advertisement.

HAVE YOU SEEN IT!

The Bee-Keepers' Advance & Poultrymen's Journal.

Only **25** cts. per year. Sample copy free.

Address
J. B. MASON & SONS,
Mechanic Falls, Me.

Mention this Magazine when answering advertisement.

SEND Ten cents in silver or 2-cent stamps, and have your name placed in **Folger's Name Directory**, which goes to publishers all over the United States and Canada, who will send you **Free**, Samples, Papers, Books, Magazines, Poultry Papers, Works of Art and Chromo Cards of every description. To all subscribers of this paper, and everybody who wish a sample of all Poultry and Bee Papers and Chromos of Prize Poultry, from all over the United States and Canada, to send at once. All who send will receive a copy of the Directory **Free**. Address,

M. C. FOLGER,
Granville, Washington Co., N. Y.

Mentioe this Magazine when answering advertisement.

G. W. MARSHALL,

North Farnam Street, Davenport, Iowa,

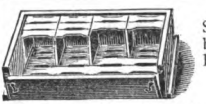
Breeder of Choice Thoroughbred

LIGHT BRAHMAS, PLYMOUTH ROCKS, and Pure

ITALIAN BEES AND QUEENS.

Send stamp for handsome illustrated directions. Mention which one you want.

Mention this Magazine when answering advertisement.



EATON'S IMPROVED Section Case. Latest and best Send for free Catalogue. Address
FRANK A. EATON,
Bluffton, Ohio

Mention this Magazine when answering advertisement.

35,000 Sold.

HOW TO STUDY THEM

A manual of Character Reading for the people, an intensely interesting and attractive book Every body should read it. 200 pages, 200 fine illus. 40 cts.

SENT FREE

A SAMPLE NO. OF THE

Phrenological Journal,

A magazine of HUMAN NATURE for every body. $2.00 a year, 20c. a no., and a list of **BOOKS** on Phrenology, Physiognomy, Health, Heredity, &c Send address on postal.

FOWLER & WELLS CO., 775 Broadway, N. Y.

Mention this Magazine when answering advertisemtnt.

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NEW BEE-KEEPERS'

TEXT BOOK,

Cloth $1. Paper 75c. post-paid.

This work is well up with the times, and we can heartily recommend it to bee-keepers. There have more been sold than any other book on bees ever printed, viz: Fifty-four thousand. The language is very plain, and nothing found in it that the veriest tyro cannot easily understand. In it is given the management of bees for every month in the year. You will make money by buying a copy. The paper bound copy, is the cheapest book published on bee-keeping containing such a store of information. Address

BEE-KEEPERS' MAGAZINE, BARRYTOWN, N. Y.

The following unsolicited testimonial from an experienced bee-keeper. Rev. Mr. Grover, is fully able to judge of the merits of this work:

PIEDMONT, S. C., Feb. 14, 1888.

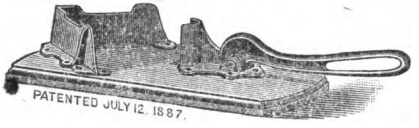
SIR—I have received the "Bee-Keepers' Text Book" and am well pleased with it. Indeed it is a real Text Book. It ought to be in possession of all who are learners. I prize it highly. Many thanks.

Yours truly,

E. S. GROVER.

A MACHINE

—FOR—



Putting Together One Piece Sections.

It will pay for itself in one day's use. No Bee-Keeper can afford to be without one. Send to your supply dealer or to

WAKEMAN & CROCKER,

MANUFACTURERS.

PRICE $2.50. LOCKPORT, N. Y.

Correspondence with supply dealers solicited.

Mention this Magazine when answering advertisement.

HELLO! WHAT IS IT?

"Did you know that Clark was selling the best Smoker made?" "Is that so?" "Yes. And not only the best but the cheapest, it will outlast any two of other makes." Send for illustrated price-list of Bee-keepers' supplies free.

W. E. CLARK, Oriskany, N. Y.

Mention this Magazine when answering advertisement.

MONEY Saved to all who are interested in Plants, Fruits or Gardening by subscribing for THE PLANTER'S GUIDE, an 8-page monthly quarto, 50 cents per year with Premium. Plain and practical in all its departments. Sample copy free. Address

PLANTER'S GUIDE,
Ainsworth, Wash. Co., Iowa.

Mention this Magazine when answering advertisement.

SECTIONS, SECTIONS

We are turning out the very finest one-price sections in the market and sell them VERY CHEAP. Also bee hives, frames, shipping crates, EXCELLENT and very cheap, Write for free illustrated catalogue.

G. B. LEWIS & CO.,
Watertown, Wisconsin.

Mention this Magazine when answering advertisemen.t

BLACK BREASTED RED GAMES

THE KING OF DOMESTIC POULTRY.

My fowls have unlimited range. Standard birds bred from the finest strains. The fowl for the farmer and fancier. Hawks can't take them. Are excellent layers and for table they stand unequalled. For sale in pairs or trios. Eggs for hatching during the season. Prices Low. Send for illustrated circular. Address

H. H. FLICK, Lavansville,
Mayfield Farm. Somerset Co., Pa.

Mention this Magazine when answering advertisement.

FOR MAKING BEE-HIVES

Barnes' Patent Foot Power Machinery

Complete Outfits for actual workshop business. With them Builders, Cabinet Makers, Metal and Wood Workers, compete with steam power. Machines ON TRIAL if desired. Proof of value, prices, full detail, illustrated catalogue free.

W. F. & JOHN BARNES CO.,

Address No. 397 Ruby St. *Rockford, Ill.*

Mention this Magazine when answering advertisement.

FREE

Prettiest BOOK ever Printed. Thousands of Engravings. Best SEED & cheapest ever grown. *Pkts 3c Cheap as dirt by oz. & lb.* 100000 *pkts. new sorts divided* FREE *to Customers.* I give away more than some firms sell. Send for my Catalogue. **R. H. Shumway, Rockford, Ill.**

Mention this Magazine when answering advertisement.

Smokers' Twenty-five per cent. off.

We have a lot of Bingham Smokers which we will sell at 25 per cent. discount, they are perfectly new and are sold to get rid of stock on hand, as we have more than we can use this season.

JOHN ASPINWALL,
Barrytown, N. Y.

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PROTECT YOUR HOMES!

MARLIN DOUBLE ACTION REVOLVER.

A GOOD
REVOLVER
no longer costs
a Fortune

These revolvers are an exact duplicate of the celebrated
SMITH & WESSON.
.38 Caliber, using
Centre-Fire
Cartridges.

Self-Cocking,
Automatic
Ejecting,
FULL NICKEL PLATED, RUBBER HANDLE.
WARRANTED EQUAL IN EVERY RESPECT TO THE
SMITH & WESSON.

For sale by Hardware and Gun Dealers everywhere.
Manufactured by THE MARLIN FIRE ARMS CO., New Haven, Conn.

BEST IN THE WORLD!

MARLIN Magazine Rifle.
For large or small game, all sizes. The strongest shooting rifle made. Perfect accuracy guaranteed, and the only absolutely safe rifle on the market
BALLARD GALLERY, SPORTING AND TARGET RIFLES, world renowned. Send for Illustrated Catalogue. **MARLIN FIRE ARMS CO., New Haven, Conn.**

IDEAL RELOADING TOOLS
WILL SAVE ONE-HALF THE COST OF AMMUNITION.
Made for all sizes of Cartridges which are used in any of the following Rifles or Pistols: Marlin, Colt's, Winchester, Ballard, Stevens, Remington, Whitney-Kennedy, Smith & Wesson; also for all gauges and makes of
SHOT GUN SHELLS, PAPER AND BRASS.
Cheaper and better than any other. Send for Price List of these tools to
Ideal Manufacturing Company,
Box 1064 G. NEW HAVEN, CONN.

Sample, by mail, 50c.

The Canada Honey Producer,

20 PAGE MONTHLY.

40c. per Year. 3 Subscriptions at one time $1.

Sample copies free.

E. L. GOOLD & CO.,
Brantford, Canada.

Sole right in Canada for Shuck's Hives, &c.
Mention this Magazine when answering advertisement.

Binders for Magazine.

Nothing could be more valuable or economical than these binders for preserving your MAGAZINE. No lost numbers. They save having your paper bound and cost but 50 cents post paid. Send for one.

BEE-KEEPERS' MAGAZINE,
Barrytown, N. Y.

THIN FOUNDATION.

In order to convert into cash, as rapidly as possible, some of our machinery, and all the wax remaining on our hands at the close of the business, we have exchanged them with Messrs. J. VanDeusen & Sons for some of their Superior Thin Flat Bottom Foundation in 25 lb. cases, which we will sell, by the case, at 50 cents per pound. THIS IS A GREAT BARGAIN!

JOHN ASPINWALL,
Barrytown, N. Y.

$5,000 WILL PURCHASE

Greendale Nurseries, including over $5,000 worth of Young Nursery Stock. See Catalogue. Also land, buildings and increasing trade. Established by 12 years extensive advertising and square dealing. Located in City limits of Worcester, Mass Buildings and land cost $5,500. On account of poor health will sell all for $5,000, or exchange for other paying property in York State. Address

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Worcester, Mass.

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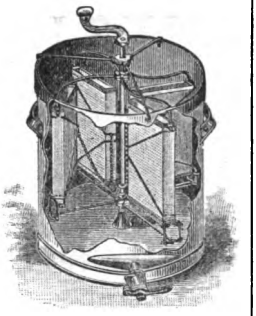

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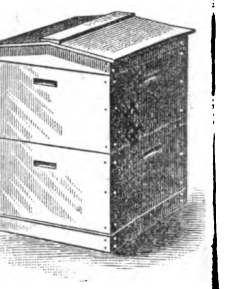

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I have received so many inquiries from old customers of the firm asking where they can get supplies to fit our old specialties, I would say that if by chance I cannot effect a sale of the business or arrange with some one to manufacture the goods we used to handle, I shall, the coming season, keep in stock a line of these goods *for old customers only*. New customers not already having our goods need not apply, as I am not desirous of running a general supply business, but do what I have promised simply to protect the interests of customers who have dealt with us supposing that we should continue in business. All of which will be duly announced in the Magazine.

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Barrytown, N. Y.

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Vol. XVI. APRIL, 1888. No. 4.

THE BEE-KEEPERS' MAGAZINE.

Devoted to Bee Culture.

JOHN ASPINWALL,
EDITOR AND PROPRIETOR,
BARRYTOWN-ON-HUDSON,
NEW YORK.

H. Gilmour, Inc. N.Y.

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THE BEE-KEEPERS' MAGAZINE.

50 CENTS PER YEAR.

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Six Months ..... 30 "

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Subscribers finding this paragraph marked with Blue pencil will know that their time has expired. Another number will not be sent unless subscribers renew or drop us a postal saying they desire to continue, and will pay later. Bee-keepers are almost invariably honest, and we shall be glad to continue sending you the MAGAZINE if you will just let us know you desire it. Watch the date on your wrapper near your name.

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BARRYTOWN-ON-HUDSON,

NEW YORK.

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BARRYTOWN, APRIL, 1888.

EDITORIALS, &c.

INSTRUCTIONS TO CORRESPONDENTS.

Correspondents writing matter for publication will confer a favor on the editor by writing on only one side of the paper, and giving their full name and address. The latter will be given in the MAGAZINE, unless there is a request to the contrary. Kindly write matter for the MAGAZINE on a separate sheet from business communications, so that we may not have to mutilate business letters to get at the literary matter. Rejected manuscript cannot be returned unless stamps are forwarded for that purpose.

The Spring.

There's perfume upon every wind—
  Music in every tree—
Dews for the moisture-loving flower,
"Sweets for the sucking bee."

The sick come forth for the healing breeze
  The young are gathering flowers,
And life is a tale of poetry,
  That is told by golden hours.

THE NEW SCIENTIFIC DEPARTMENT.

With this number we open a new field to our readers, one that has been sorely neglected, we think, and one that offers an infinite amount of interest, as well as being of an infinite amount of value. Cheshire says with great truth, "*Practical bee-keeping is the outcome and not the parent of a scientific knowledge of bees and their relations to the world about them.*"

In this department we shall endeavor to present matter of interest to old hands and old heads in bee-keeping, and we are sure the old bee man will always find something new and of value in its columns, for God has endowed no insect more richly than the bee, with attributes calculated to arouse an admiration. From time immemorial has its handiwork been pointed to, by *savant* and preacher, as an outgrowth of a wonderful instinct which at times bordered on reason.

Science is apt to be despised by many, but it is well to remember were it not for science we would be little better off than savages. If Huber had not made his discoveries we should probably be keeping bees in straw hives on the old-fashion plan to-day. Who do you turn to if you have foul brood in your apiary? To the man of science, who tells you it is a fungoid growth and that such growth is distroyed, and prevented, by the use of salicylic acid, phenol, etc. Within the scope of science in bee culture, come careful experiments in wintering, the use of various foods, observations on diseases, studies of the habits of enemies of the bee, discourses on the fertilization of flowers, demonstration of the anatomy, and a thousand other matters not connected directly with the mere manipulation of the hive or selling of the honey. Without further apology we launch the scientific department of the MAGAZINE on its career. May its life be a long and useful one, shall we say?

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THE BEGINNERS' DEPARTMENT.

We re-open, with this number, the department for beginners. Fully recognizing that many of the terms used in our bee journals are incomprehensible to the average beginner, we shall endeavor from time to time to explain their meaning.

We have on hand a large number of most interesting articles that will appear in the next few numbers of the Magazine. We are not afraid to say we think this one of the best numbers of the Magazine that has appeared in a long time, and we are certain some of the future numbers will equal, if not surpass it. Convention reports have crowded out many valuable essays, and now that convention time is about over they will soon appear.

To Francis Huber belongs the honor of having first invented the movable frame hive, but to our own countryman, the Rev. L. L. Langstroth, belongs the honor of having first invented the practical hanging frame. So practical and finished was Mr. Langstroth's invention that to-day all hanging frame hives in this country, and in most of Europe, are almost identical with his, invented over thirty-six years ago. No tribute to the value of an invention could equal the simple statement of the above fact. M. Quimby, of New York state, a contemporary of Langstroth, adopted a modification of the Huber leaf hive. The Quimby hive is eminently a practical one. We have seen its extensive use, and were astonished at the ease with which it was manipulated, and were we to adopt a hive to-day for our own use, in which to obtain comb honey, we should choose the Quimby in preference to the Langstroth.* We should, however, use a dlfferent size of frame from that accepted by Quimby. If the colonies were to be wintered in the cellar, we would use the Langstroth size; if they were to be wintered out of doors 10 x 15 inches, inside measure, would be about right. At some future time we will point out the excellent features of the Quimby hive with standing frames.

ADULTERATION OF HONEY BY DEALERS.

The Dairy Commissioner of New Jersey has been doing bee-keeping a noble work. He has turned his attention to adulterated honey, as found in his State, and a beautiful case he has made of it. We invite careful perusal of his report. You see some old friends. There, among others, are McCaul & Hildreth, and F. G. Strohmeyer & Co. The latter firm has been a new candidate in the field of honey commission men, with Mr. Siegelken, formerly of Thurber, Whyland & Co., as their honey man. We commend the report, on sample No. 90, to the attention of our readers, as indicating one of the worst cases of adulteration on record. It is a double falsification.

Messrs. F. G. Strohmeyer & Co. made application to us for advertising space early in the season, but knowing Mr. Siegelken of old (having been the winner in one adulteration fight against him) we concluded to "bide a wee,' and see how the wind was blowing. We are now glad we acted so, and Messrs. Strohmeyer & Co. cannot get into our columns, while they adulterate honey. Messrs. Thurber, Whyland & Co., we are glad to note, have stood the test and came out unspotted. They have evidently kept to their promise published in the Magazine, and have

*We here use the term Langstroth in a general sense—referring to any and all hives embodying the hanging frame principle as invented and introduced by him.

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ceased adding glucose to honey. We heartily endorse Messrs. Thurber, Whyland & Co., and advise our friends to support their action, by consigning honey to them. So long as they keep the stand of non-adulteration, it is the *duty* of bee-keepers to further their (Thurber, Whyland & Co.'s) interests as much as is consistent with looking after their own.

So long as Messrs. F. G. Strohmeyer & Co., continue adulterating honey, they should be shunned by all bee-keepers who have any respect for themselves or their pocket books. The same is to be said of Messrs. McCaul & Hildreth and the rest of the gang of adulterators. They should be made to feel that they are outraging the rights of the bee-keepers of this country, and for the few paltry dollars they may make in their nefarious trade, they are ruining hundreds of bee-keepers, and rendering hundreds of others poor, with their families perhaps, in want.

It is a lasting monument to our friend, the late Arthur Todd, that amid all the adulterating dealers about him, he stood aloof and never soiled his hands with the dirty business, and that when he preached, "Deal in pure honey," he also practised it.

MR. DEMAREE'S EXPERIMENTS.

The experiments in wintering bees under various conditions, by Mr. G. W. Demaree, are exceedingly interesting and valuable. We are glad to open the Scientific Department with so able a paper. We should like to know whether when Mr. Demaree brought the bees into his office, he allowed them to fly, or retained in the hive by wire cloth at the entrance.

In an editorial on page 38 of MAGAZINE, (Feb. number), we mentioned the *Advertising Reporter*. This should have been the "Advertiser Reporter," a book of ratings published by the Publishers' Commercial Union, of 69 Dearborn street, Chicago, Ills. This firm is an enterprising, reliable party, whose services have been a great help to us in avoiding bad advertising contracts. It seems that another party in New York, who were originally connected in some way with this firm, have taken upon themselves the publication of a periodical devoted to ratings, which they style the *American Advertiser Reporter*. This title, we presume, was taken so as to steal the other's thunder. The adoption of such a course places the publishers of it in an unenviable light. And still more so when it is known they copied our editorial as a puff for themselves, by altering *Advertising* to *Advertiser*, knowing full well, all the time, that we had never subscribed to their paper, nor had any dealing with them whatever. We commend the ten commandments to their attention.

NEW EDITION OF TEXT BOOK.

Owing to the rapid sale, the present edition of the Text Book is exhausted before we could get another ready. We are at work on a new one which will be issued very shortly.

HEREAFTER we shall make it a rule to only notice the catalogues and price lists of those who are on our subscription list. We cannot be expected to give a free advertisement to those who are not interested enough in the MAGAZINE to pay 50 c. for a subscription.

THE GREAT STORM AND ITS EFEECTS ON BEES.

The greatest storm ever seen in this part of the country visited us on March 12th, and lasted for several days. A hard snow storm, accompanied with a low temperature and very high winds, created drifts larger than have ever been known here. What effect this amount

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of snow will have on bees south of this latitude is hard to tell. Reports to date would indicate successful wintering in the majority of cases. But we are not out of the woods, so we had better reserve our crowing till about May 15th. Winter, in the aparian world, lives till that time in this section of the country. We should like to hear reports from apiarists living within the area of the great storm of March 12th.

MATTER TO APPEAR LATER.

Owing to the number of convention reports, much interesting and valuable matter has been crowded out. Among other matter to appear in the next few numbers are the following:

"Causes of Honey Flows," by C. Thielman.

"Marketing Comb Honey," by Will M. Kellogg.

"Out Apiaries," by J. H. Martin.

"Essential Points of Successful Wintering," by F. Boomhower.

"Exhibiting at Fairs," by C. R. Isham.

"How can we Increase the Demand for Honey and Maintain Present Prices?" by L. C. Root.

"Easy way to find a Queen," by a Subscriber.

"Securing Comb Honey," by F. A. Snell.

"Ought Bee-keepers to make Exhibits at Fairs?" by J. I. Parent.

Besides these there are numerous other communications which we cannot enumerate for want of space. You see, dear reader, there is plenty before you.

OLD Winter has sat long enough in the lap of Spring and we wish he would get up and go about his business. If it was a bee hive he was sitting in, may be he wouldn't "linger" quite so much.

For the Bee-Keepers' Magazine.

MOLLY HEATH'S VENTURE.

A Serial Story.

BY JULIA ALLYN.

PART SECOND.

(Continued.)

August has come and the busy swarming time is safely over in the Heath apiary. The original six hives have, by dividing and swarming, been increased to fourteen strong colonies.

Since the Fourth of July picnic, many of the townspeople have visited Rosecroft, and two hives of bees fully equipped have been sold for the sum of twenty-four dollars, thus leaving twelve hives in the apiary, and besides this a hundred pounds of extracted honey and fifty pounds of comb honey have been engaged by different parties, to be delivered in September.

At the picnic Tom had succeeded readily is disposing of his two dozen boxes of apple-blossom honey at thirty cents per pound, and a number of persons who had then purchased had afterward come to Rosecroft and engaged more.

During the month of August the extracting business is to occupy much time and attention. The extractor has been sent them by express by Uncle John, to whom it is to be returned after the busy season here is over as he will use it later in the fall.

The extractor consists of a large metal cylinder in which are wire standards to hold the frames containing the honey. By turning a crank these standards are made to revolve and the centrafugal force drives the honey out upon the sides of the cylinder, and flowing down it collects at the bottom and by means of a faucet it is drained off through a strainer into pitchers or other receptacles.

It is on one of the warmest days in August that we find the Heaths, who have rallied their forces, and securely barricaded all entrance to the honey room with screen door and wire netted window, actively engaged in the extracting business. Mollie and Rob are carefully examining each hive as they

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come in regular order, to ascertain which have honey that can be spared for extracting, and then taking out the large frames filled with honey from the lower part of the hives and having with a soft brush carefully removed the bees clinging to them, they hand them over to Tom, who takes the loaded frames to the honey room, and after Nan has skillfully uncapped them with a sharp knife made for the purpose, he places them in the extractor, which is securely screwed to a large bench, turns the crank and having soon accomplished his object returns with the emptied combs which he exchanges for full ones again.

Arranged in a row on the long table in the honey room are glass jars of different sizes which hold respectively one and two pounds of honey. These jars have metal tops which screw on and also wire handles and are air tight.

The day being warm the honey flows rapidly and Nan pours it readily from the pitchers into the jars which, as soon as they are filled, Teddy helps to put away carefully in the safe with the closed wire doors, and thus five pair of hands are kept busily employed.

"What a store of honey," exclaims Rob, as he opens one hive after another. "Uncle John must have sent us the very best hives he had. I should think the bees must have been years in gathering all this honey."

"Yes," said Molly, "Uncle John certainly gave us a wonderfully good start, and some of the hives, indeed, look as if the honey had not been taken out for two or three seasons. Uncle evidently wanted to encourage us to continue in the business. I think we are greatly favored. First the apple trees were well loaded with blossoms, then the farmers about here planted more white clover than usual, and the buckwheat crop and all the honey plants have flourished, as the season has been neither too wet or too dry, and now we shall have the golden rod and the fall plants to reckon on. We certainly ought to rejoice over this bountiful harvest, and take courage for the future. I wish more persons could be interested in the subject of apiculture. I think next winter we must put our heads together and get up a bee-lecture, and you can deliver it at one of your lyceum meetings; what do you say to that Rob?"

"Well, Molly, if you will write the lecture, as I am the Co., I will agree to deliver it; so it's a bargain."

"Well, Tom, how do you like the extracting business?" asked Rob.

"Oh, first rate," said Tom. "See how clean these combs are. It is wonderful how just turning the crank drives out the honey and leaves the combs all ready for the bees to fill again, but what shall we do with the pieces of broken comb which we have?"

"Oh, for the broken pieces of comb there is a wire comb basket which we can attach to the main frame; so you see we need waste none of the honey and the broken comb when emptied we will save for wax which we will melt over when we have time and sell to the man from whom we get our foundation," answered Molly.

"Well, Molly, you approve of economy and mean to pick up the fragments I see," said Rob.

"Yes, domestic economy is an important branch of political economy and 'every little helps,' you know."

"I will tell Ned Stearns what an economical woman you have become," said Tom, laughing. "By the way, Molly, when does the famous garden party come off? I hope Mrs. Frey will be well enough to have it soon."

"Yes," answered Molly, blushing slightly, "Ned said, last night, that the long promised party would be given next week Thursday, and he expected his cousin Gertrude and Jim Travers to spend a week with him at his aunt's, and he hoped to have some fun going on every day."

"That will be jolly," said Tom. "We will get this honey business nicely arranged by that time and although we shall keep on making hives and frames for outside trade we will not be so driven as we have been the last two months. But what will that city cousin say to the bee business, Molly? If she's a stuck up thing and looks down upon us it will spoil all our fun."

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"Oh, no," said Molly. "It may not be so pleasant all round, but we must not be ashamed of any honest labor. We can't all be rich, if we would like to be, and indeed I think we have been far happier this summer from having some useful employment than we were formerly when we spent most of the summer days in listless idleness or pleasure seeking. What do you say, Tom?"

"Why, Molly, I agree with you; I scarcely know where the time has gone, the days have passed so quickly."

"Well, all work and no play is perhaps nearly as bad for young people as all play and no work, and I think we will enjoy heartily a week of fun and frolic," said Mollie. "Ned's friends come early next week and we must call on them and invite them here to play croquet with us." "You and Rob must do the calling, Molly; Nan and I always feel so shy with strangers. If Miss Gertrude Stearns is a society girl, I for one, will have nothing to say to her. I think that style of girl is a bore."

"We must treat every one courteously, Tom, even if we disagree with them on some points. You can find some good in almost every one if you are looking for it," said Molly.

"It's like hunting for a needle in a hay stack to find good traits in some folks however," said saucy Tom.

"Not if you use charity in magnifying glasses," rejoined Molly.

"Well," said Rob, "this is the last hive, I believe. How many pounds does this make in all?"

"I should think over a hundred, but we can tell by the jars. After we have closed this hive we will go to the honey room and find out just how much we have taken out," said Molly.

"How much shall we ask a pound for the extracted honey?" inquired Tom.

"I think twenty-five cents for the pound jars and fifty cents for the two pound ones. As the jars can be used again for preserves, I think those who gave thirty cents for the comb honey will certainly be willing to pay that for the extracted honey. If we sell by the half dozen or dozen packages at the store we will ask only twenty cents. Honey is a novelty to the people of this neighborhood, and seems at present to find a ready sale. We don't know how long this state of things will last, but we will rejoice in its existence now and 'make hay while the sun shines'," said Molly.

"Well, Nan and Ted, how is your part of the extracting business coming on?" asked Rob, as Molly and he enter the honey room.

"Famously," answers Nan, and little Ted with his besweared face and hands replies, "This is a sweet business, Sister Molly. When I grows up I shall be a bee-keeper."

"You mean you will be a honey-eater, you sticky little Nan. Indeed, you are that already," said Molly. "I forgot to tell you to whistle while you were helping. However, you have done well, and now let us count the jars, Rob. Eighty pound jars, and twenty two-pound ones, that makes one hundred and twenty pounds in all. We can fill all our present orders for extracted honey and still have some on hand."

"Are you sure, Molly, you have left enough honey for the bees to winter on?" asked Rob.

"Yes, I think so. We have only taken two frames from each hive, and if the winter is very long and severe we can feed them some sugar and water syrup in the spring, but we have left enough for them, I should judge, as they will continue to gather honey into October probably."

"I think we have done remarkably well thus far, for the first year," said Tom.

"We will have more surplus comb honey to take out next month and then we will know just how much we have realized in all. I have kept the accounts in my cash book so we can know just what our profits are," said Rob.

"I must say, boys, I think we are a strong business firm and have every reason to prophesy good results for the future," said Molly.

"Yes, if Ned Stearns or some other

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chap doesn't take it into his head to spoil our partnership," said Tom.

"Oh, you horrid Tom," said Molly, laughing. "You need never fear, I am cut out for a sedate old maid and will be content if I can see you and the others prospering."

"Well, you are just the jolliest old maid I ever met," said Tom, "and I hope you will continue to be one, till we get the bee business established on a firm foundation."

"All right," said Molly, "we will make it a bargain and adjourn this interesting session for the present."

From our Special Correspondent.

THE EAST COAST OF FLORIDA

A "Bee Country," and the True Condition of Apiculture there at the Present Time.

The usual winter losses of bees in the Northern States causes many apiarists to turn their thoughts to Florida, believing that in this sunny land, where flowers are blooming the entire year, there would be a field open for the enterprising apiarist which, if occupied, would result in satifactory returns for the trouble and expense that might accrue in removing to so favored a locality. There have been good reasons in the past for the inquring mind to dwell upon this subject, as the apicultural journals have contained numerous reports relative to this and other localities, as specially favored by nature for for the production of honey. Believing there are other localities in the State that are suitable for establishing apiaries with a fair prospect of success, it is not necessary in this article to make any reference to them, but rather confine the subject to the locality embraced in the mangrove district of the eastern coast of the State, of which New Smyrna has long been considered the center. With the exception of St. Augustine, it is claimed to be the oldest town in the State, and one of the last to receive the benefits derived from railway transportation, and as a consequence has been deprived of its share of emigration, compared to other portions of the State.

Previous to the freeze of January, 1886, this locality was considered to be a most desirable location for securing large yields of honey. The mangrove flourished for miles up and down the river and in the season of its blooming, the amount of honey secreted was sufficient for thousands of colonies. The bee-keeping industry began to attract the attention of specialists, quite a number of whom possessed flourishing apiaries numbering from fifty to two hundred colonies and over. After the freeze, which killed and blighted from seventy five to ninety per cent. of the mangroves, a feeling of despair secured a firm hold on many of the bee-keepers, and they either sold out, or removed to more promising localities, To those who remained, the future proved anything but encouraging. The lack of honey to subsist the colonies upon, caused many to die of starvation, and a general indifference to the result was common. Bees have been shaken upon the ground, the honey extracted and the combs melted into wax in order to secure a portion of the amount invested in them by their owners, previous to removing. The result is, there are at the present time but one-third to one-fourth as many colonies here as were in the fall of 1885, and to the best of my knowledge, no one is relying on their apiaries exclusively for a subsistence. There are individuals here who desire to dispose of their apiaries; others who realize if the impression goes abroad that apiculture is a failure it will prove disastrous to the disposal of their real estate. It is from persons of this character that the misleading reports emanate that are seen in the Northern bee journals. The season of '87, like the year previous, has proven a failure, the colonies barely securing sufficient to winter upon, but not a few of the bee-keepers have extracted at the rate of from 50 to 80 pounds of honey per colony. The result at present is the bees are either starving, or are being fed at much trouble and loss to the owner. While this is transpiring, the Northern bee-keepers are reading of a third of a crop in this locality, of nine barrels of honey from forty-five colonies, and reports of a like

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nature, which are intended to mislead, for reasons mentioned above.

Possibly many who peruse this article may inquire in what way does apiculture differ in Florida from what it does in the North, and if the absence of winter is a benefit to the apiarist? Replying to the first, can say so far as my opinion on the subject is concerned, The only feature that is identical in both localities is the *instincts of the bee.* Of the second, the best interests of the colonies are only secured by the constant vigilance of the apiarists during the winter months. The climate, the humidity of the atmosphere, the variety, time and duration of the blooming of the flowers, must be familiarized. the fact that colonies require about thrice as much honey to keep them in an active condition, the necessity of strong colonies to secure surplus, and, unless they are destroyed at the close of the season, the increased amount of bees are of but little value except to consume honey. The prevalence of the musquito hawks render queen rearing extremely uncertain at times; the moth worm, active at all seasons of the year, make the preservation of combs extremely difficult. The ease with which robbery can be started during a dearth of honey and the persistence of the bees in keeping it up, are among the many objectionable features of the profession. Our honey is also liable to ferment if not given the best of care, and the result is sometimes the bursting of the barrels while undergoing transportation. Another great detriment is that our best grades of honey, known as "mangrove" and "palmetto" honey, are classed in the Northern markets as Southern honey, which reduces it to the level of the strained product of Georgia and other Southern States, greatly to our disadvantage. Had the interests of Florida apiculture been taken into consideration by the representation of the national society during the past four years, instead of seeking to promote personal aggrandizement, a better state of affairs could have been reported, notwithstanding the many disadvantages under which we have labored during a portion of that time.

It will be seen that with the many desirable features of this location, among which are an enjoyable climate, the natural food resources of the country, and an almost perfect exemption from diseases, there are objections here as well as in other States.

Honey production in the Northern States is more profitable and requires less labor than in this locality, and there is not the least doubt but that it is so over the entire State. Our home market is comparatively nothing to what is possessed by the apiarists of the North, except in some favored localities near the large cities. The winter problem, or the loss of colonies is not taken into consideration as in the North, if the colonies have not been deprived of their stores, and the ambition to secure a large yield of honey has ruined many a promising colony of bees.

The future prospects of this locality appear to be good, as the new growth of mangrove secreted a small yield the past season, and it is expected the yield for 1888 will enable all to secure a full crop..

Through the solicitation of a number of the more prominent apiarists of this locality the North American Bee-Keepers' Society have been induced to appoint Prof. G. W. Webster, of Lake Helen, as the Vice President for Florida for that society, for 1888. Having an extended apiacultural experience in the State of Iowa. and also in this State, coupled with his reputation as a botanist of distinction, fits him to a great degree for the position which he now holds, and all interested can rest assured that no visionary or misleading article on Florida apiaculture will emanate from his pen. The above description of our honey interest and the condition of affairs pertaining thereto, are as near the true facts of the case as circumstances will warrant in asserting, at the present time. JOHN Y. DETWILER.

New Smyrna, Fla., Jan. 4, 1888.

[The above report, we are sure, will set matters straight. There has been a good deal of misleading matter published regarding Florida bee-keeping, and it is time it was "ventilated."—ED.]

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For the Bee-Keepers' Magazine.

Legislation for Bee-Keepers Not Feasible.

The December number of the MAGAZINE was received with great pleasure, as usual, and read with interest, until I came to the report of the N. A. B. K. Society, the topic: "Legislation for Bee-keepers." I was astonished to find that any man would present such an idea or ideas as were introduced in that discussion. I have to say at once, monopoly, in the truest sense. I will have to ask the editor and readers of the MAGAZINE to bear with me, if I am pointed, in this article.

What better can any person want (unless they want all) than we had, and continue to have in the bee business? There never was a time in the history of bee-keeping that honey could not be sold at some price. This cry for legislation for bee-keepers is very common it seems, with bee keepers. Suppose, for an instant, we should legislate that none but specialists should keep bees, how many bee-keepers would there be in the United States? and what would be the result therefrom. 1st. Very few bee-keepers. 2nd. And but very little honey. When Doctors, Lawyers and Preachers alone will produce honey for the consuming nations, we will eat but very little honey. Let every person keep bees, who loves the business. We can produce honey at five cents per pound, and have a profit. We are now realizing what high prices are, a great demand and a limited supply. I would rather have plenty of honey to sell at ten cents per pound, than to have high prices and no honey to sell. What say you bee-keepers? The questions before the bee-keepers should be, *how can we produce more honey, better honey, how can we care for our bees better?* These are the points desired, not how can we effect the solidest monopoly. Pres. Miller says in this discussion: "Bee-keeping is not like traffic so much as is like farming, stock growing, etc. * * * What resemblance has one business to the other? Bees do not consume any part of the pasture that would be detrimental, but rather be a benefit. Hence bees do not trespass as do stock. Again he says: "How about farming? * * All farmers do not own land, but are farmers all the same." I will close, but do not conclude. S. H. LINTON.

Burrows, Ind., 12—17, 1887.

[We think the question of legislation has been sufficiently discussed for the present. It is like the boy's perpetual motion machine, avery wonderful and beautiful machine, *only it wouldn't work.* Now that is just this legislation, in a nutshell. The idea, the theory, is all right, and we are very much inclined to feel that as Dr. Miller has fashioned it it wouldn't be a bad thing; in fact a wonderfully beautiful thing, *only it wouldn't work.*

Mr. Linton is altogether mistaken we believe, in supposing the term "professional," as used by Dr. Miller, as applied to so-called professional men, like Doctors, Lawyers, etc. The term "professional" as used, referred to those making *bee-keeping a profession.*—ED.]

Would He Know Water?

A Melbourne correspondent of the Dundas *Advertiser* narrates what he consider an interesting proof of the provident and far-seeing instinct of bees: "Turning from men to insects, a singular circumstance is reported from a hot, dry valley in New South Wales. Last year the drouth there was of long duration, and the denizens of the apiaries suffered much from it. This year the bees have made provision against a similar emergency. They have filled a large number of external cells in every hive with pure water instead of honey. It is thought that instinct leads them to anticipate a hot summer.—*Western Rural.*

[We wonder how true this is? Perhaps this correspondent hadn't seen water in so long a time he would not know it when he had the chance to gaze upon it.—ED.]

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Honey.

The forthcoming report of the Dairy Commissioner of New Jersey will contain notes on the quality of strained honey as usually sold in bottles and jars. Forty-two samples of bottled honey were analyzed and it was ascertained that out of thirty-one samples put up by packing houses only six were pure.

The samples purchased in small towns and villages, representing strained honey put up by farmers, were all pure.

Below is a table of the samples analyzed and the result of the analysis:

STRAINED HONEY.

Office No.	*Where Purchased.*	*Name on Lable.*	*Result of Analysis.*
57	Paterson....	Wm. Thompson, Wayne Co., N. Y., "choice comb honey"...	Adulterated
58	" ...	McCaul & Hildreth Bros., N. Y. City, "white comb honey"..	Adulterated
59	" ...	Same as 58	Adulterated
56	Hoboken...	Ritter, Philadelphia; no label.....	Adulterated
60	" ...	Wm. Collins, Worcester, N. Y., "choice comb honey".....	Adulterated
61	Jersey City.	J. V. Sharp Canning Co., Williamstown, N. J., "clover honey"	Pure
62	" .	Wardell & Watson, Brooklyn, N. Y., "white clover honey from the apiaries of Central New York; warranted pure".....	Adulterated
76	Newark....	J. T. Dunham, "superior quality of clover honey"	Adulterated
77	"	Thurber, Whyland & Co., N. Y., "pure California white sage"	Pure
78	Hoboken...	E. A. Walker, Greenpoint, L. I., "superior XXX honey, warranted pure".....	Adulterated
79	Jersey City.	Wm. Collins, Worcester, N. Y., "choice honey"	Adulterated
80	Hoboken...	E. A. Walker & Bro., 135 Oakland St., Brooklyn, N. Y., "choice honey".....	Adulterated
81	Newark....	Charles Israel & Bro., N. Y., "choice California honey"	Adulterated
82	"	C. G. Leslie & Son, Pittsfield, Mass., "choice extra clover honey"	Adulterated
83	"	"No Name," said to be Ritter	Adulterated
84	Hoboken...	Geo. D. Powell, "choice extracted Northern"	Adulterated
85	Newark....	Wm. Thompson, Wayne Co., N. Y., "choice golden rod honey"	Adulterated
86	Hoboken...	E. F. Watson, Brooklyn, N. Y., "pure Calsfornia honey from groves of San Diego, there is none better"	Adulterated
87	Paterson....	McCaul & Hildreth, New York, "choice extra honey".....	Adulterated
88	"	Code, Elfelt & Co., San Francisco, "extra choice Los Angeles"	Pure
89	"	Frank Charters, New York, "white clover honey".....	Adulterated
90	"	F. G. Strohmeyer & Co., New York, "pure orange blossom honey; is absolutely pure, no glucose".....	Adulterated
91	"	Wm. Thompson, Wayne Co., N. Y., "choice golden rod"...	Adulterated
92	"	Andrew Jackson, Deposit N. Y., "pure honey".....	Pure
1416	Burlington..	R. J. Dutton	Pure
1417	" .	Sleeper, Wells & Aldrich.....	Adulterated
1418	" .	Arthur Todd, Philadelphia.....	Pu.e
1424	" .	Arthur Todd, Philadelphia.....	Pure
1425	" .	Western honey.....	Adulterated
1427	Bordentown	R. K. Allen, farm honey.....	Pure
1429	"	Wm. Collins, Worcester, N. Y.....	Adulterated
1431	"	Shipps & Sons, farm honey.....	Pure
1432	"	S. Garrison, farm honey.....	Pure
1434	Trenton....	Wm. E. Johnson, Moorestown, N. J.....	Pure
1435	"	S. P. Robinson, farm honey.....	Pure
1436	"	S. Holcomb, farm honey.....	Pure
1437	" ...	F. E. Erends, Dentsville.....	Pure
1438	Camden....	Brown & Bros., State honey.....	Pure
1439	"	Arthur Todd, Philadelphia.....	Pure
1440	" .. .	Wm. Collis, Worcester, N. Y.....	Adulterated
1441	"	Gifford & Stiles, State honey.....	Pure
1442	"	Philadelphia Pickling Co., "virgin honey".....	Adulterated

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Advocates Secrecy of Statistics.

Mr. John Aspinwall, Barrytown, N. Y.:

MY DEAR SIR:—It was with much pleasure that I read of your suggestion at the N. Y. Convention, of forming a secret society of bee-keepers for the exclusive benefit of the members thereof.

Of especial value is the secret part of it, in the matter of statistics.

If the statistics of the honey crop are fully published in the bee papers, it will be very likely to do as much harm as good. Take for example the city of Providence; it is almost entirely supplied with honey raised outside of Rhode Island, and much of it is purchased through New York or Boston commission houses, local firms handling very little. Now the Rhode Island bee-keepers reap the benefit of this; for the retailers will buy more quickly and at better prices of us, than they will if they have to go to Boston for it. Suppose it was published in the bee papers that the Rhode Island crop was short, not near enough to supply the demand, how quickly would "Tom, Dick and Harry" ship their honey here, and spoil things for both themselves and us. At present if I am supplying a few retailers and have not enough honey, I buy of those producers either in or out of Rhode Island, the quality of whose goods I have no doubt of, and sell to my customers at the same price as my own sells for, something I could not do if the state of this market were known to all bee-keepers.

Now if the statistics are supplied only to members of the society, and they are pledged to give the members residing in a district having a short crop, the first chance to purchase, and when enough has been secured to supply said market, it is reported to the local secretary, who in turn notifies districts that have been offering honey, it would prevent a glut, and tend to keep the market firm. I know that all this would necessitate a large and very complete organization, as well as a somewhat expensive one. It would require a prompt, wideawake secretary in every district. It might be politic to merge the present Union with it or better make protection a feature of the new society, thereby enabling the bee-keeper to realize two benefits for *one* yearly "due."

These are only a few thoughts which occurred to me while reading of the statistic matter.

Yours respectfully,
A HONEY PRODUCER.

March 12th, 1888.

[The above is a portion of a personal letter received by the editor, the thoughts in which are so valuable that he has made bold to publish them. —ED.]

For the Bee-Keepers' Magazine.

Two Sides.

Editor Bee-Keepers' Magazine:

Ever since you became editor of the MAGAZINE I have been highly pleased with it, for you are free-spoken, and what pleases me more is that I believe that you always try to satisfy yourself that you are in the right before you pass your opinion, and if you do make a mistake you are as willing to be corrected. That is the right spirit, I think. We should say what we believe when we find we are wrong, own up and be honest about it. When I came to the article on page 375, credited to American Tract Society, I was deeply interested, for I believe I know the people therein described, and their manner of giving tribute unto "the Lord" is a lesson that ought to be of great value to every Christian in the land, for, if we are not willing to give to the cause of Christ, how can we expect to be rewarded. Some years ago, when I was a mere boy, I rented my mother's farm and a farm of some neighbor ladies. (It was in Pennsylvania, where they did not plow much.) And on their place I sowed four acres of oats. We did not hardly expect an average crop, for the land was low and wet. I had a certain debt that would become due about the time I would have my oats threshed. I was very uneasy for fear my part of the oats (one-half) would not yield enough to pay it, and I was a believer in the Lord, and always went to Him in prayer with all

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my trials and troubles. I prayed most earnestly that those oats might pay the debt. It would take fifty bushels to do it. When we threshed there were ninety-nine bushels, my share being forty-nine and a half bushels, and I had to sell by weight, and I was afraid they would fall a little short. However, when I sold them I found they weighed out just fifty-four bushels. I believe that the above instance was as a lesson to me, to show me that the Lord was willing to help and assist us when we would put our trust in Him. We will all have our dark times all through this life, but by going to the Lord in our darkness, in prayer, we will receive help. I hope that many will profit by the article referred to in MAGAZINE. Dear Editor, I hope you will have a prosperous year, and do us a great deal of good, as in the past.

GIDEON B.

Quitman, Mo., Dec. 17, 1887.

Many persons think there can be nothing more pleasant than to edit a paper. The day before we received your letter two others arrived as follows :

MR. EDITOR : You may now discontinue my paper. If I want a religious paper I will subscribe for one. We have the ministers to preach the gospel to us, not through the columns of a bee paper. If you want to raise a row combat a man's religion. I like your MAGAZINE very well as a bee paper, but not as a religious paper. Yours,

CHAS. A. ECKENRODE.

Littletown, Dec. 14, 1887.

MR. ASPINWALL : Please stop subscription to BEE-KEEPERS' MAGAZINE. Cause for stopping is : I do n't approve of sermons in bee periodicals, such as is on page 375. I did intend to renew and try to get two or three more, but since I read the above, gave it up.

Yours truly,

A. A. LEPPER.

Carson, Nev., Dec. 20, 1887.

We wrote to Mr. Eckenrode and said that the last thing in the world we wanted to do was to combat a man's religion, and asked where we had done so. His answer was that we had used seven columns of the December number to print a sermon ! The facts of the case are simply these : We contracted to supply Mr. Eckenrode with a monthly magazine on bee-culture, containing thirty-two pages. December number had forty pages, thus he received eight more than he bargained for, and yet, because we used three and a half pages for an article he did n't fancy, he rejects the paper. All this is given to show our readers who find an article that does not exactly please them, that it was never intended for them at all, but what they fancy will be found in some other part of the MAGAZINE. And also we would suggest that, if they tried to edit a paper, they would find it not all a rosy path. If it is rosy, the thorns stick pretty well.

Why Do They Carry It Out.

Editor Bee-Keepers' Magazine :

I have a few questions I would like to ask in regard to bee-keeping, which I hope will not prove an annoyance, viz. : Will bees winter successfully on candy ? I use cream candy, which I read of in your MAGAZINE. Is that right ? Do bees ever carry the candy out of their own hives, and why do they do it ? The reason I ask is this : On a cool day I fed one stock on candy, and the next day being warmer, they flew out and around. I noticed a few bees that took flight, having what appeared to be particles of candy in their jaws. I take the MAGAZINE ; am quite pleased with it, and would not be without it. I will renew my subscription for the coming year. Send me two or three sample copies, and I will try and get you some new subscribers. I will now conclude, hoping not to trouble you again with these question. I am, yours very truly,

JOHN DIMOND.

Fly Mountain, N. Y., Nov. 30, 1887.

[Are you sure it was candy ? We

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can see no reason, unless it is because they thought summer was coming, and candy a nuisance at such a time. Can any one answer?—ED.]

Of Interest to New Englanders.

Editor Bee-Keepers' Magazine, Barrytown, N. Y.:

MY DEAR SIR.—It has been suggested that the next and ninth annual National Agricultural Convention be held in Boston. These conventions have heretofore been held in New York, Philadelphia, and the West, and have always been attended by representative agriculturists from all sections of the country. The coming one will be the greatest ever held. Should the farmers of the New England States and the people of Boston desire to have this convention held in Boston, and favor me with an expression of their desire in the matter, the utmost consideration will be given the suggestion, and I have no doubt the next convention would be called in Boston. Very respectfully,

F. K. MORELAND, Secretary.

57 Broadway, N. Y., Dec. 27, 1887.

DO BEES RECOGNIZE EACH OTHER BY SCENT?

Some Interesting and Valuable Experiments on the Subject, by R. E. Brand.

Mr. Editor:

Another year has come, and it is time to renew my subscription. I, for one, feel that we have had much good reading in the past year, and I can afford an extra quarter for this year.

But I think the article copied from the *American Bee Journal*, from G. F. Robbins, in your November number, one of your best. I commenced to handle bees in 1861, in box hives. I have never been a large bee-keeper, seventy colonies at one time being the highest, but I have learned by handling bees since '61 something more than I have read in text books. I was taught by all the bee books that the bees of a hive could tell friend from foe by scent, but I found out to my sorrow that there was no truth in that years ago. The severest battle I ever saw fought was between the bees of one colony that I divided, who had some holy blood in them; one half tried to rob the other half; they came very near ending like the Killkeny cats, including one of Mr. King's best queens. The reason I know it was between themselves was because there was no bees of that color about me for one and a half miles. If Mr. Robbins had watched them closely he would have seen that when they expect robbers there is usually a strong guard on the alighting board, and as a bee drops on the board she is caught by one of the guards and if she lowers her head and goes under the guard all is well, but if she raises her head to fly she is caught and treated as a robber, although she may have been hatched in that hive. I have taken a colony where there was not another for a mile and opened them and aroused their suspicions, and there was the same amount of catching and pulling as there was in the apiary. I mixed a few colonies of blacks through the centre of my apiary for a test, and cut the wing of all the queens, and after they had made a few attempts to swarm, and had to come back, the blacks and yellow were all mixed up, and yet no fighting. I have often watched a swarm go out from the center of my apiary and when they came back not more than one-half came to the same hive. I have taken hives of bees when they were as cross as satan could make them, and moved them up to one end of the hive and put in a division board, leaving a bee space under, and let them be for twenty-four hours to get acquainted with their quarters, and then take another colony, pick out the queen and put them in the other end without disturbing the bees that were in the hive, and in two days they would be all together without the least fighting, so far as I ever saw. I could give you many more ways in which I have tested them to find out this scent question, but have always failed. If a bee-keeper goes through his apiary of an evening, when honey is coming in, he can always tell what they are working on by the smell from the hives. As every hive

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has got the same kind of honey in and and every bee is saturated with the same smell, how can it be possible for one bee to tell another bee by scent when all smell alike? The only way they can tell is by the fear manifested by a bee when she enters a hive to rob it. They are expecting punishment, and when one of the guards catch hold of them they do not sit quiet like the one entering with a load, but throw up their head and wings to get away, perhaps they do get away and perhaps they do not. I have always found it the same with queens. I never could see that bees could tell one queen from another from scent. If I can change a queen and she shows no fear I have never had *her* killed by the bees. I have written you a long letter and you may not thank me for it. *Well you can read until you get tired, and the waste basket will hold what is left.* Wishing you a Happy New Year, I remain as ever,

R. E. BRAND.

Plainfield, New Jersey.

[This article was mislaid, and the editorial comments in January number should have appeared this month, Please refer to them.—ED.]

A Capital Illustration.

Editor Bee-Keepers' Magazine:

Enclosed please find fifty cents, my subscription price for next year. I for one am glad you have put the price up, as I think you was giving us too much for our money. The price of your MAGAZINE, twenty-five cents, has often made me think of something one of my help said a few years ago. Some of the help employed in our mill got up an entertainment consisting of singing, reading, and amateur performing, and it was very good. This young man went out before the entertainment closed, and as he passed out I asked him "what he was going out for?" He said: "Any one who would take more of that for fifteen cents (the price of admission) would steal! It was too much for the money."

I got my pay out of the advertisements, sure, for I got the address of the Knickerbocker Bee-Farm Company from their advertisements and ordered a few bees and a few queens, and was more than pleased. The bees are flying lumps of gold, so beautiful! and they (the K. B. F. Co.) sent me everything to my entire satisfaction. I am an amateur; commenced last year with one swarm in a nail keg, which I wrote you about, "The Ball of Bees," and have at present one swarm of blacks and four of beautiful Italians. Four are in Chaff hives, one in a double hive made of one-half in inside hive and seven-eights outside hive. I did not get a pound of honey this year.

I am going to winter on the summer stand. I put two thicknesses of burlaps over the frames and about six inches of fine cut hay and sawdust on top. What troubles me now is, I am afraid they will be short of food, for as I now remember that the food was on all the frames (10 L. frames); in all I should think six frames half full of capped honey. I shall do all I can now do—wait and see. Yours &c.,

THOS. M. PEIRCE.

Wickford, R. I.

Difference between Drone and Worker Comb.

Editor Bee-Keepers' Magazine:

Please explain how to distinguish drone comb from the other?

Yours. AMATEUR.

Ligonier, Feb. 13, '88.

[Drone comb has *four* cells to the inch and worker has *five*, that is in measuring across the face of the comb. —ED.]

I have one hundred and twenty colonies of bees packed in two cellars. I am trying 45 colonies in a very cool cellar, and will report when they are taken out. E. K. MEEKER.

Duncan, Ill., Feb. 2, '88.

I put twelve colonies in cellar this winter. The only bees I know of around here. Very little honey last year; I got about 150 pounds which I sold for 20 cents. JOHN FOGT.

Ord, Neb. Jan 24, 1888.

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Scientific Department.

For the Bee-Keepers' Magazine.

SOME BEE TALK, &c.

BY G. W. DEMAREE.

Stormy winter, dreary winter, it has no charms for me now, if it ever had. The winter was favorable on our bees, on their summer stands, up to January 10th. Since that time the earth has been covered with the "slickest" sheet of ice ever seen on the earth. A great many valuable cattle have crippled or killed themselves by falling and struggling on the ice. Some of our farmers have lost heavily in this way. I have often noticed that when a great "sleet" covers the earth, there is a "chill" about the atmosphere that is unfavorable to the comfort of bees on the summer stands. Still we have had no very severe cold weather, and our bees may come through all right. The temperature has at no time gone below zero, and has only touched that point lightly on two mornings this winter.

SOME INTERESTING EXPERIMENTS.

I have had a theory in my mind for several years that bees may be wintered safely and in the best of health in a cellar kept at a low temperature. In fact it would make little difference whether the temperature was kept above the freezing point or not, provided the cellar, or bee house, is heated up to a summer temperature once in ten days or two weeks. The heat should be kept up for about twelve hours so that the bees can throw off all moisture from their bodies, external and internal. This I expected to have the same effect as a winter flight in the open air. Well, some experiments I have on hand is in a fair way to prove my theory to be a fact. In the beginning of winter I placed in our vegetable and fruit cellar a small colony of bees, where the temperature is kept but little above the freezing point. At intervals of about ten days the hive has been carried into my office, which is heated by means of a stove to a summer temperature. The several thicknesses of cloth is removed from the top of the hive leaving but one thin burlap quilt which is securely fastened over tne top of the hive to prevent the bees from escaping. The entrance is covered with wire cloth. When the bees begin to feel the warmth of the room they gradually rouse up, and in a few hours are ventillating with their wings like summer time. Late in the evening the hive is again covered with some extra quilts at the top and returned to the cellar for another period of repose. These bees are in excellent health at this writing, January 30th. I have also kept a small colony in a shipping case in my office all the time. They are fed syrup made of honey and sugar about once a week. They "roar" loudly in the day time when the room is warm. The temperature goes down below the freezing point when the nights are cold. Several nights the ink on my writing desk froze solid. These bees also are in excellent health. Of course this colony kept in my office does not come within the scope of my experiment in cellar wintering. They are to test the matter as to whether continuous "disturbance" will wear out bees in winter confinement.

It need not surprise anybody if experiments in the future prove beyond doubt that something else besides pollen or bad feed lies back of the trouble called diarrhœa. But I will revert again to these experiments when they are completed.

While my experiments with the colony in the cellar has made it certain to my mind that *unfavorable conditions* is the true "cause" of diarrhœa, it leaves undisturbed the practical part of the question, viz: that the best refined food will enable bees to hold out much longer against unfavorable conditions, as claimed and insisted upon by Messrs. Heddon, Cook and others. And both of my experiments put together prove that bees do, and ought to, hibernate under *certain conditions*, as claimed by Rev. W. V. Clark and others, and denied by Prof. Cook and others, and they do not and ought not to hibernate under certain other conditions as claimed by Prof. Cook, and denied by Rev. W. F. Clark. That is my experiments prove

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that bees do hibernate under certain conditions, and do not hibernate under certain other conditions. This is precisely what we see in some of the rodents of the same family which hibernate in the Western and Northern States, but do not hibernate in the Southern States, because the conditions are not the same in the different localities in which they pass the winter. My experiments further proves that "disturbance" under certain conditions may injure bees, as claimed by Rev. W. F. Clark and scores of others, and apparently denied by Hutchinson, Heddon and others. And "disturbance" does not injure bees under certain other conditions, as claimed by Hutchinson and others, and denied by Rev. W. F. Clark and scores of others. I am now inclined to think that when the facts are all brought out there will not be a great deal of room for the ever ready "I told you so."

Christiansburg, Ky.

Read at the N. Y. State Bee-Keepers' Association.

THE VENTILATION OF BEES IN WINTER QUARTERS.

P. H. ELWOOD.

In an article on this same subject, read before you in 1876, it was estimated that for every three pounds of honey consumed by the bees while in winter quarters, nearly 8,000 cubic feet of air should pass through the hive in order to carry off the extra quantity of carbonic acid (carbonic dioxide) gas generated. This amount of honey was taken to be the maximum amount required per month, and while the activity of no colony ought to be measured by this consumption for any great length of time, any colony may exhibit such activity for a short time, hence the necessity of provision for air supply in accordance. This amount of air is also assumed to be the maximum amount that may pass through the average hive without creating injurious drafts. The amount allowed may seem large, but the change of air is very much less rapid than with hives out in the open air. A writer in the *Australasian Bee Journal* estimates that when a Langstroth hive with a ½ inch entrance sets facing a moderate breeze of ten miles per hour the air within is changed once every minute.

The consumption of the above amount of honey sets free about 2¼ pounds (15,750 grains) watery vapor. If each cubic foot of air passing through the hive carries with it two grains of this watery vapor the 8,000 cubic feet will rid the hive of moisture with no condensation. Air entering at 41° to 42° F. at saturation and passing out at 55° to 56° loaded will do it. Air of the same temperature entering two-third saturated and out four-fifths saturated with do it better. The same quantity of air entering at 49° to 50° loaded and out at 55° to 56° will not do it. Raise the temperature of exit 6° and it will just do it. Raise it 10° and there is a margin, but a loss of heat. So it is seen that if the air can be carried into the hive with but little moisture, a smaller quantity is required, while if the same quantity is supplied it may leave the hive at a lower temperature, thus saving heat for the bees and honey for the bee-keeper. Another reason why the air should be dry is the fact that the conductivity or power of conducting heat of common dry air is represented by 80, that of saturated air is 230 or nearly three times as great. This may explain why some fail in wintering at a high temperature while others succeed with a low temperature. The first man's bees in a temperature of 50° in a moist atmosphere may suffer and die from the cold while the second man's bees at 40° in a dry atmosphere may be warm and comfortable. I have long thought the hygrometer a better instrument than the thermometer to consult in the bee cellar. It would be interesting to stop here and estimate the number of heat units developed by this consumption, the number spent in heating the air supply, the quantity lost by conduction, eic., but time forbids, while the data is yet meager for such computations. I think there is no danger of our bee cellars having too dry an air, while there is great danger that the air may be too humid. The average humidity for the pure atmos-

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phere at Philadelphia is 73 per cent., while farther inland it is somewhat drier. At St. Helena it is 88 per cent. I have to be satisfied if our own cellars go between 80 and 90. A good Mason's hygrometer, costing a couple of dollars, will tell us both temperature and moisture. The test for carbonic acid requires more manipulation and skill than the average bee-keepers will wish to give it. Happily when wintering in cellars no test for carbonic acid is needed as the air first fails in carrying off the moisture generated.

Hives may be ventilated either top or bottom, but not at both so as to create a draft through the hive. There is more danger of giving too much ventilation with top than with bottom ventilation, but when the relative humidity is high top ventilation may be the best. I know of no form of top ventilation so well adapted to allow the moisture to escape, while retaining the heat, as the thick wool mats recommended by Mr. Corneil. When the tariff is removed from wool we may be able to use them. Sub-earth ventilators have been recommended for bee cellars and when well put down with vitrified sewer pipe and carefully cemented joints they are good for securing a more uniform temperature and adding warmth. Unless carefully constructed, air is drawn from the soil and this is usually nearly or quite saturated. When the exit ventilation can be connectod with a heated flue nothing better can be devised.

NOTES ON HONEY.

The following notes on honey are taken from the report of the Dairy Commissioner of New Jersey, and the analyses referred to were made by Shippen Wallace, Ph. D., one of the chemists to that commission :

To the State Dairy Commissioner :

SIR—I have the honor to submit, in addition to the regular reports of analyses, the following notes on honey and the methods of testing that article; also a few notes on vinegar.

SHIPPEN WALLACE,
Analytical Chemist.

HONEY.

Honey consists of the saccharine substance collected by the bee (*Apis mellifica*) from the nectaries of flowers and deposited by them in the cells of comb. While this is the commercial article, yet the production of honey is by no means limited to the bee, for there is a honey ant in Mexico which stores a nearly pure syrup of uncrystallizable sugar. A. Vieliers has reported also a honey from Ethiopia, which is the product of an insect resembling a large mosquito, which, like our wasp, makes its nest in cavities in the ground, The natives call the honey "tasma," and ascribe to it medicinal virtues, especially using it as a cure for sore throat.

The composition of honey is complex, but the essential constituent is a mixture of dextrose and levulose; and a solution possesses the physical property of turning the plane of polarized light to the left. This property furnishes an easy and accurate method for the detection of the adulterated article, and, while I have never met with a known pure honey which was not lævo-rotatory, yet there are statements on record which claim that honey has been met with which was dextro-rotatory.

Honey is adulterated as much, if not more than most articles of food, and, while the adulterant is harmless, yet the fraud to the purchaser remains. The substances generally used are glucose and cane sugar. The former, on account of its low price, has been the most common, and mixed with enough of the genuine article to give it a flavor is sold extensively as "pure extracted honey." One will also find a small piece of genuine comb honey in a jar which is filled with glucose syrup. The honey in the comb gradually diffuses itself through the mass giving the required flavor.

I have examined forty-three samples of honey, the purity of which was unknown, and have also examined two samples of known purity. The method of analysis was as follows : A Soleil-Scheible polariscope was used, the normal weight of which is 26.048 grams; that is to say, 26.048 grams of pure

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cane sugar (sucrose) dissolved with 100 c. c. water, and a tube 200 m. m. in length filled with the solution, will indicate 100 on the scale. Cane sugar and glucose will therefore indicate "plus" and "levulose," or honey will mark "minus" the zero. The same weight of glucose will turn the plane so far to the right (or plus) that it will exceed 100. The commercial glucose, when the normal weight is used, will indicate from 155 to 170, according to the greater or lesser amount of dextrine present. Pure honey will indicate from —4 to —15. Seldom, however, as low as —15, but I have found this figure in old honey of undoubted purity. It will therefore readily be seen that owing to the high dextrorotatory power of glucose, that a comparatively small amount will neutralize the lævo-rotatory power of the honey, if added. The same, of course, is true, if cane-sugar syrup is added, but in this case the indication will not exceed 100, as will be the case if a sufficient amount of glucose is present.

The mode of procedure is as follows: 26.048 grams of the honey are taken, dissolved in a flask of 100 c. c. and the solution filtered through a small quantity of bone black in order to clarify the solution. A tube of 200 m. m. is then filled with the solution and placed in the instrument and the instrument adjusted, the indication of the scale being noted. If "minus," we may assume that the sample is genuine, for while it is perfectly possible to produce a honey which is adulterated, which will indicate "minus," yet at present, after conversation with and inquiry from those engaged in the business of manufacturing honey, I am of the opinion that the adulteration consists in the use of dextro-rotatory substances. If the indication of the scale is "plus," however, that will indicate that either cane sugar or glucose has been used, and if the scale indicates more than 100 the presence of glucose is conclusive, but if not we must proceed to learn which. This is accomplished as follows: A solution is prepared as stated, or 50 c. c. of the original solution is taken and treated with one-tenth volume of hydro-chloric acid, heated at a temperature of 80 deg. C. for a few minutes, cooled and re-polarized, If now the scale still reads to the right the presence of glucose is assured, while if to the left, cane sugar is shown to have been the cause of the original reading being to the right.

The action of the acid is to "invert" the cane sugar, that is, to change it to a substance which no longer is dextro, but is læva-rotatory, and which is termed *invert* sugar, and acts in the same manner as honey. While cane sugar can be added to a honey, which will not indicate "plus," yet practically the amount used is so great that such is not likely to be the case. If such should be, however, by what is known to chemists as "double polarization" would yield the amount, this being the method for determining the small amount naturally present, and if more than 5 per cent. was obtained it would indicate a *probable* addition.

Temperature has more or less effect on the rotatory power of invert sugar, consequently all the readings of the solutions should be at a uniform temperature in order for a proper comparison.

As an adulterant, however, invert cane sugar, if made without the use of acids and not added in too great an excess, would prove a substance rather difficult to positively detect. If used to a large amount its great lævo-rotatory power—a pure invert sugar solution marking at 23 deg. C. 32.5 would indicate its presence. It has been tried, but, I understand, has not given satisfaction, and when used has been used with glucose, no honey whatever being used. It has been suggested by some that an examination of the ash of honey would indicate as to its purity. This is a mistake. I have found the ash alkaline even when glucose has been present, and I have found phosphoric acid to be present in a sample claiming to be "virgin honey," and containing no honey whatever. The amount of ash is so variable in known pure honey that this is no guide.

A charming little MAGAZINE.

Elgin, Ill. MISS T. L. B.

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Beginners' Department.

MOTTO—"Courage and Perseverance."

THE tyro in bee-keeping is generally an enthusiast; this is well, and the successful bee-keeper is the tyro who has had the courage and perseverance to keep up this enthusiasm to the end. Bee-keeping cannot be learned in a day, nor a fortune made by it in a year; each step as you advance may show you a mistake you have made, and the point is to avail yourself of this experience and not commit the error a second time. Thus each step is a true advance, and you may be sure that if this is the case with you, dear reader, all you have to do, to reach the goal you are after, is to *keep on stepping*.

Our first advice is to take a periodical devoted to bee culture. We care not if it be this one or some other, only provided it will advance you. Never get to that stage where you think you cannot learn. When that deplorable state is reached you had better give up the pursuit, for you have not reached the goal and you are standing still! Never try to economize by stopping your bee-paper, for you would be like the man who, finding he had to retrench in his expenses at home, because his pay was somewhat reduced, concluded he would not eat in the future and thus save his butcher and baker bills, and you know full well what was the result.

The next thing is to buy your bees—either obtain them from some reliable dealer or from some one in your neighborhood. See that they are in movable frames of same size, such as can be bought on the market, so that you may buy a hive and move them into it.

A MOVABLE FRAME is a rectangular frame of wood, inside of which is built one of the honey combs of the hive; these combs are, as a rule, ⅞ of an inch thick. A full hive should contain eight of these frames full of *comb*. For further information on combs and frames see pages 52 and 200 of the new Bee-Keepers' Text Book.

BUY a stock or two of native bees (Blacks) as your first investment. A stock or colony consists of the queen and about thirty thousand workers. There may be also a few hundred drones. Our reason for advising the purchase of black bees instead of Italians, is because they can be obtained much cheaper, and thus the first outlay will be less—$5 per colony on eight movable frames delivered early in the month of May would be about the correct price for this latitude. Of course if you are further south you must get your bees earlier. Dealers ship colonies of bees by express in shipping boxes, and guarantee their safe arrival at your nearest depot, do not ask the dealer, to ship them in a hive, particularly if it is heavy, as the consequent heavy jars in handling will break the combs. Leave the dealer to use his best judgment, seeing he guarantees safe arrival.

The colony has for its principal personage the QUEEN. This bee is the mother of all in the hive, and the only perfect female in it; she lays all the eggs. This monarch has very restricted powers, so far as government goes, The old idea that she governed the colony like a true despot, is one only remarkable for its antiquity. The bee hive is a very limited monarchy; in fact it is a republic, the office of whose head is, as President Cleveland aptly remarked of his own position, a purely executive one. The workers govern the colony in truth. These WORKERS are females whose ovaries (egg laying apparatus) are undeveloped. They sometimes do lay eggs, as will be spoken of later, but in that case they become a hindrance instead of help. These workers do the honey gathering, comb building, and are in fact the life of the hive. Upon their energy depends, to a great extent, the prosperity of the colony.—EDITOR OF B. K. M.

New Edition of Text Book.

The present edition of the Text Book is exhausted, and we will shortly issue another. It is having a more rapid sale than we anticipated, and thus our stock was gone before we expected it. However, it will not be long ere the new edition appears.

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Questions and Answers.

Question No. 35.—In testing an Italian queen, can we know if she has mated with a part Cyprian or Holy Land drone. If so, how? B. J. R.

I have never had any experience with such mating.—FRANK A. EATON.
Ohio.

Not positively. Can only judge by the appearance of the workers.—J. P. H. BROWN.
Georgia.

I never had those varieties mixed, so I am unable to say. Holy Lands and Italians being so similar, a cross progeney would hardly be recognizable. But you say "*part* Cyprian or Holy Land." That would depend on what the other "part" of the drone was. Like the boy's pup, who recommended him to be "three-quarters 'tarrier,' sure, you can ask all the other boys about it." When asked what the other quarter part was, said: "Why—well—oh!—just dog."—H. H. FLICK.
Pennsylvania.

There is no possible means of knowing, or rather detecting, whether an Italian queen has mated to a cross-breed, Cyprian or Holy Land drone, so far as judging by any of the queens' progenity is concerned—either her workers, queens or drones. In some instances of such mating, the queens queen-progeny, will be nearly all of them dark ringed on their sedgments, and the *drones* will also be darker than Italian drones; then again, the same cross, to all appearance of the *mating stock*, will produce a very opposite, that is the workers will be *very* yellow, so will the *drones*, and especially will the queens be much more beautiful than any Italian queen; this is especially true where the crossing is advanced to the 5th and 6th generation. The first crossing of each races *always* give dark color throughout.—A. L. SWINSON.
North Carolina.

Question No. 36.—1. If a colony of bees that have been fed regularly every evening in spring, be neglected for one or two evenings, will they not tear the unhatched bees out of the cells and carry them out of the hive?

2. If fed regularly every evening and not fed in the morning, will they not act the same way?

1. If the bees had no other stores to depend upon but what was fed in the evenings, some colonies might, but if they had other stores they would not, as a rule.

2. No.—FRANK A. EATON.
Ohio.

1. No, not if they are not neglected more than one or two evenings. Would not care to risk it long.

2. I never feed in the morning, it is very apt to start robbing. They will not destroy the brood if fed once a day.—WILL M. KELLOGG.
Illinois.

1. It will all depend on how much honey they have in the hive. If they have a little cap honey a little neglect will cause no trouble.

2. If fed regularly every morning they will not carry out the brood from that eause, if they do carry out brood it is from some other cause.—H. D. CUTTING.

1. In reply to this question I say yes, most emphatically. I must say, however, that if they have ample stores there is no necessity to feed. The theory of feeding to keep brood rearing going on, is correct in itself, but when the colony has stores enough, nothing is gained by so doing. The *rule* is that brood production and comb building go forward only when stores are being gathered. The *exception* is that in early spring it is natural for brood to be reared, to perpetuate the life of the colony, and it will be reared if the hive contains food sufficient for the purpose. I do recommend the feeding of flour or rye meal, when there is little or no pollen in the hive.

2. In my own experience I have found that evening feeding only, produced equally as good results as though the feeding was done both night and morning. In any case, food enough should be given to supply all wants of the colony.—J. E. POND.
Massachusetts.

1. If you feed your bees to stimulate brood rearing they should be fed regu-

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larly, but not too much at a time. As soon as natural supplies can be obtained, you should cease feeding. The neglect of a day or so will not cause injury to the brood.

2. Bees must not be dependent altogether, on what they get daily. They should have some sealed stores of good honey. This I find the best stimulant. I always winter with a good supply of sealed honey—not sugar syrup—so the bees have plenty of sealed stores for brood rearing, then a few days of bad weather does not affect brood rearing. I don't believe in stimulative feeding.
—H. H. FLICK.
Pennsylvania.

Read at the Michigan Bee-Keepers' Convention.

Comb Honey vs. Extracted Honey.

The advantages to the apiarist of producing either kind of honey, rather than the other, depends upon his tastes and circumstances. Our choice in all the ordinary, not to say the most momentous things in life, is controlled largely by our tastes; and this controlling influence will generally be left when we come to decide whether we shall make it our business to produce comb honey or extracted honey, and it is highly proper that this should be so.

Every one does that best which he likes best. I like best the production of comb honey, and my mind involuntarily pictures to itself superior neatness and comfort, and greater ease and more equable division of the labor of the season among the days, as appertaining to this branch; but while I continue to like this best, I must confess that when I sit down and listen calmly to reason, it is difficult to find any great difference in these respects. So there is no accounting for tastes; nevertheless they should be consulted, for though they cannot be voluntarily created, yet they are largely formed in response to the necessities of existing conditions; and it is these conditions which, in the absence of a decided bias, must be consulted in order to determine whether it is better for any particular individual to devote his apiary to the production of comb honey or of extracted honey.

Now, what these conditions are, it is of interest to all apiarists to know; and, as I view it, the chief among them are the following, namely: Existing appliances, the quality of the honey produced, the season when it is obtained, and the character of the home market.

Of course, if an apiarist is supplied with the appliances necessary for the advantageous production, and the care of comb honey, he should be very slow to incur the expense incident to a complete change of these for those adapted to the production of extracted honey, and *vice versa.*

Secondly, choice in the matter should often be influenced by the quality of the honey produced. It is seldom best to undertake the production of comb honey, unless it is to be white and of good quality. Dark comb honey is almost always a drug in the market, and sells generally at a very low price—so low that when the increased amount of extracted honey that can be produced is taken into account, the latter will be found to bring easily the more money.

Next, it is to be remembered that in the early months of the season the bees produce wax freely, and work it readily, while later in the season they are rather slow to do either; and the resulting fact is, that with the otherwise equal opportunities they will usually store much more honey during the first part of the season than during the last, if they are obliged to build the comb in which to store it; so it will generally be found more profitable to use combs for extracting in which to secure the fall nectar.

Lastly, the character of the home market is to be considered. I think it is safe to say that if three-fifths of the price of comb honey can be obtained for extracted honey, the production of the latter is the more profitable in all circumstances; and there are many home markets in which nearly or quite as much is obtained for the latter as for the former. Those who are blessed with such a market should cultivate it assiduously, and keep it supplied con-

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stantly with extracted honey of the finest quality that can be produced.

It is to be noted, also, that generally the man makes the market. Some have a remarkable faculty in this way. They never have any difficulty in making a market for anything that they have to sell. Such should make the most of this talent, and thus not only greatly benefit themselves, but also to a considerable extent relieve the markets of the larger cities. R. L. TAYLOR.

Written for the N. Y. State Convention.

The Formation of an International Association.

JOHN ASPINWALL.

There can exist no doubt in the minds of all bee-keepers of the desirability of forming a closer bond of union between the now widely separated associations existing in this country. Not only is this desirable for the sake of strength, but also for the sake of advancement. Such being the case we have only to consider how this association may be formed to accomplish the ends in view. If my premises are not true—that we all believe such an association desirable, we want to hear from the other side and have them tell us *why*.

Assuming then that our intensity in this country will stand amelioration we must endeavor to search for that path which will lead us to the goal. In Europe representative associations on a large scale have been eminently successful. They are governed by conservative men who have the interests of the pursuit, *as a whole*, at heart, and ever strive, not so much to advance themselves as the science of *bee-keeping*. This is highly commendable and I hope we may follow in their footsteps; but the conditions of things in this country are on a footing so entirely different that other plans than those of the pure philanthropist must be looked at. Three plans of association occur to me.

1st. An organization whose objects shall be the closer union of the interests of bee-keepers, and the advancement of bee-keeping as a pursuit for pleasure and profit.

2d. An organization whose aim shall be to increase the demand for honey, endeavor to raise the price, and work for the pocket-book of the bee-keeper only.

3d. An organization combining both plans.

The first plan is the one carried on in England and Norway, but in America bee-keeping is more of a business; therefore we cannot work for the best interests of bee-keepers without working for their pocket-books, and consequently No. 2, at a second glance, would seem most advisable. But such an organization would be but a large business concern, having no sympathy with the good will which exists between bee-keepers emphasized to a marked degree at conventions like the present one. Its conventions would be simply business meetings to talk over trade matters, and would be very *dry* and to many uninteresting. Therefore the 3d stands out as the only feasible plan in America.

The foundation, the corner stone of any association which can succeed, must be *unity*. Whether representative in form or not, every man must work for the association and thus work for himself. Associations as now constituted are very much of a plaything. We attend them to have some fun, and meet old friends and have a good time generally. Or we may go to talk business and sell some goods; but anyhow, being present or not, we do not feel, except with the seller of supplies, that our pocket-book has been in the least enlarged, or that we have gained any great amount of knowledge. Understand me, I do not desire to belittle the importance of our conventions, but the question is, "*Cannot we make them go a bit farther than they do?*"

Any one must see that as an *association* this one of New York State is a farce. Don't accuse me of rank heresy before you hear me out. What I mean is this. We meet here in convention and have a good time. We turn our backs to its doors and go home. How much New York State Association do we take home with us? I will tell you! We take home the recollections of a

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pleasant and perhaps profitable meeting! That is all. We receive no lasting benefits; we do not feel that the association amounts to a row of pins during any other portion of the year except at convention time. What we want is an association whose influence we will feel during the whole year. An influence which shall not only help us by its instruction, but by the aid it will give us in making our pursuit more profitable.

I have been pondering for many days over the proposition set forth by Mr. Newman, at the North American Association meeting, that we should form a honey company as a branch of the association proposed. I had much doubt whether such a company was either desirable or feasible; but after much reflection I believe we must have something of that sort in the country to make an international association a success. Let it begin in a small way and extend gradually. A representative association would be a good thing, and the only hindrance to such a plan is the distance and cost of travel to the meetings. I refer here to a body where representation was a necessity to existence. The association must be one great unit. Each man in any way connected must be a member. The central body should be called the international association, and the rest *State* or *County* associations. The *whole* must be the international, and all the different conventions but meetings of grades and sections; just as in freemasonry all members are brothers in the order, though they may belong to widely separated lodges. I therefore submit a plan for consideration. It might be put into execution in this as a trial, and then the international formed on the same plan if this is a success.

First of all the New York State Association of Bee Keepers should be *incorporated*, thus establishing its claim to *the* state association. Each county then, who desired to form an association, could apply to the proper officers of the state association and obtain a charter, as it were, and call themselves members of the state association forming a sub association called after the name of their county. There might be a state association honey lable having a design copyrighted by the state, to be used only by the members of the association, and soon everywhere the label would be known as always being attached to the pure article. Confidence in pure honey would return, and the consumption of the sweet largely increase. The question of fees or yearly dues would be absurd to discuss at this early stage in the movement, but I would say that they will in no wise be greater than the benefits the members would receive.

I do not desire to forstall Mr. Isham in what he will soon have so ably to say, but I think I can point out that the influence of such an association as outlined would be great, with fair managers. An organization, representing as we do a shifting membership to a great extent, can have very little weight with that class of persons. Finally I commend this matter to your most earnest consideration, feeling sure in the formation of an International Bee Keepers' Association your seed "will fall on good ground and bring forth fruit an hundred fold."

From the N. Y. Times.

APPLE-BLOSSOM HONEY.

What a Producer Says About its Superiority Over Other Kinds.

DECKERTOWN, N. J., July 16.—"Bee men always think that honey made from sumac is the best there is," remarked a large producer of honey the other day; "but I've just discovered something that beats sumac honey all hollow," he continued. "Here, taste of this, and tell me what you think of it." And he produced a jar of strained honey, which in its clearness and purity, seemed fit for the gods to sip. It was tasted, and found to possess a peculiarly delicious flavor—a flavor which all said they had never noticed in honey before.

"That's apple-blossom honey," explained the bee man, as he watched with delight the effect of his saccharine product on the palates of his listeners. "When the apple-blossoms came out there wasn't much of anything else for

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the bees to work on, so they put in their best licks in the apple trees, and they soon stored away a good many boxes of this here honey. I was examinin' the hives one day, and tasted some of the honey, when I noticed how much pleasanter it was than any other honey I had ever seen, so I concluded to find out what it meant. Recollectin' that the bees had had nothin' much but apple blossoms to work on, and noticin' the apple blossom flavor to the honey, I soon came to the conclusion 'twere these flowers that made the honey taste so good. When the apples had done blooming I removed the honey and kept it separate. A good many people have eaten it, and they are all so delighted with it that I believe I could sell tons of it for a cent or two more on a pound than even sumac or white clover honey will bring," remarked the bee farmer as he disposed of his last box of honey to an eager customer.

The whitest honey is made from the blossoms of white clover. Its flavor is fine, too, and it always commands the highest price. Sumac honey is not so white, but is thought by most people to possess a richer flavor, and it is in great demand. Remarkably fine honey is made from the basswood tree. But those who know a good deal about honey producing say they never tasted anything that equaled the apple-blossom honey above referred to. The comb is white, but not such a beautiful silvery white as that made from white clover or buckwheat. Otherwise in appearance it resembles buckwheat honey.

A great deal of honey is produced in this and the adjoining counties. In Wayne County, Penn., there are several large apiaries which produce thousands of pounds every year. Probably the largest producer in Orange county, N. Y., is Mr. Wisner Utter, of Amity. In Sussex County the largest bee raiser is Mr. T. L. Babcock. While managing his large farm he finds time to devote to the bee industry, and he sells a great deal of fine honey. He it was who made the discovery about the apple blossom honey. It may interest the amateur bee-keeper to learn that the Cyprus bee is considered the best. The Italian is the largest, and is an excellent worker, probably the best of all. But the Cyprus bee, although nearly or quite as small as the native, is such an active little fellow and so pugnacious withal, that he not only does a great deal of work, but what is very important in honey producing for profit, he will not permit neighboring bees to rob him. The bees are great sinners in this matter, and steal from neighboring colonies whenever they get a chance, and a weak colony of native bees will sometimes submit to having nearly all its store pilfered away before the necessity of organized resistance becomes apparent. But when that supreme moment of defensive warfare begins, woe to the unlucky aggressors! Each thief is caught by two or three bees, carried outside the hive, and there killed and his body rolled over the side of the hive upon the ground.

The honey crop thus far this season is comparatively light, but promises well for later in the season. The late frosts and the subsequent droughts made the beginning inauspicious, but since the rains so many flowers have been in favorable condition for secreting nectar that the bees are all doing well. One colonly made twenty-five pounds in two weeks, during which time two large and successful swarms came from it. The white clover is yet plentiful, and buckwheat is now beginning to blossom, while nearly all the composites are dotting every field with their white and yellow faces, giving the bees all the work they can possibly do. Should the weather continue as favorable as at present an immense quantity of honey will be produced this season.

Editor Bee-Keepers' Magazine:

Last spring I started with 52 swarms of bees, and they averaged me 30 pounds of box honey apiece. I suppose I need not have written this, for lots of others have beaten that.

M. F. CRAM.

Braintree, Vt., Jan. 1, 1888.

[Yes; they have, friend Cram, by not getting so much! Report is a good one, considering the season we had.—ED.]

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Don't Believe It.

A correspondent of an Ohio paper says: If you see an advertisement agreeing for two red stamps to tell you all about bee-keeping, and how to make twenty-five dollars per colony out of your bees, don't believe it. Another thing you should see before you believe, that bees gather and store great quantities of honey from red clover. I have had bees for many years, and always saw them in red clover when they could get nothing else to work on, and would seem to be busy, but would gather very little honey. I once had the satisfaction of getting some pure red clover honey. In a dearth of honey from other flowers they were working strong on the bloom of the seed-crop of red clover; the fields were just humming with bees. I put a strong swarm on clean, empty combs, and succeeded in extracting a tew pounds from them. It was thin, of a dark red color, and had a clover taste, but I thought it was not good honey.

Comments on the 50c Subscription Rate.

I am glad you have raised the price of the MAGAZINE to 50 cents as it is well worth the price, and gives it a a better tone. Yours truly,

FRANK A. EATON,

Bluffton, Ohio, Nov. 24, '87.

I enclose some poetry, and hope this mite may help raise the price of the MAGAZINE to where I felt it ought to have stopped when you let it down, but

> The book is worth the money still,
> And all can have it then who will,
> And make the most of it and fill,
> Their empty heads if such there be,
> With notes on Api almost free.

Yours Respectfully,

JOHN ANDREWS.

The pliers and bee-brush came to hand, also your card, but I have been very busy and only now have time to thank you for them. Would not go another season without them for $3.00. You let the bee-keepers know I said so. They are worth their weight in silver. Do you know of a second-hand foot-power saw for sale?

ROBERT KENNEDY.

Canada, Bethany, Aug., 1887.

[We are glad you were pleased with the goods. Perhaps some of our readers know of a second-hand foot-power saw for sale.—ED]

It is hard to get fifty cents out here, but as long as I keep bees I will try and find enough to pay for the MAGAZINE, as I cannot get along very well without it. Yours with respect,

MRS. WHITE.

Knox Co., Ill., Jan. 10, '88.

The eighteenth semi-annual session of the Central Michigan Bee-Keepers' Association will be held in the Pioneer Room at the Capitol, Saturday, April 21, 1888, commencing at 9 A.M. After the business meeting and the annual election of officers, the members and friends will be addressed by A. J. Cook, of the Michigan State Agricultural College. A cordial invitation is extended to all, especially those interested in bee culture, as this will be a very interesting meeting.

W. A. BARNES, Secretary,
Box 158, DeWitt, Mich.

Literary Note From the Century Co.

MR. KENNAN'S Siberian papers, illustrated by Mr. G. A. Frost, who accompanied Mr. Kennan on his trip through Asiatic Russia, will begin in the May *Century*. Their appearance has been deferred on account of the author's desire to group in preliminary papers —the last of which will be in the April *Century*—an account of the conditions and events in Russia directly related to the exile system. This system is now to be minutely described and elaborately pictured; and by way of preface to the first illustrated paper, Mr. Kennan will, in a brief statement, answer the question as to how he came to enter upon his arduous and somewhat perilous investigations, and why he and his companion were accorded such extraordinary facilitles by the Russian Government itself. In the April *Century* Mr. Kennan will write of "The Russian Penal Code."

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Our Clubbing List.

We offer the following unusual Clubbing List. We consider them *first-class* periodicals, and we cannot too highly recommend them :

	Regular Price.	Price with MAGAZINE.
The Farmers' Magazine,	$ .50	$ .85
The Poultry Keeper,	.50	.85
The Practical Farmer,	2.00	1.75
Agricultural,	1.00	1.25
Prairie Farmer,	1.50	1.65
American Agriculturist,	1.50	1 65
Scientific American,	3.00	3.05
Century Magazine,	4.00	4.00
The Independent,	3.00	3.00
American Horticulturist	1.00	1.25
National Journal of Carp Culture,	.50	.80
Orchard and Garden,	.50	.85
Tuttle's Photograph called "Medley of 120 Prominent Bee-Keepers,"	1.00	1.25
The Poultry Monthly (new subscribers)	1.25	1.45
The Western Rural	1.50	1.75
Harpers' Monthly	4.00	3.75
" Weekly	4.00	3.90
" Bazar	4 00	3.90
" Young People	2 00	2.25
St. Nicholas		3.25
Photographic Times (weekly)	3.00	2.85
Photographic Times (monthly)	2.00	2.00
Planter's Guide, without premium	50	75

Catalogues Received.

Northing, Brazlan & Goodwin Co., Seeds and Plants—Minneapolis, Minn.

Sylvan Scenes in Winter-Summer Lands—The Missouri Pacific Railway.

Oliver Foster, Apiarian Supplies—Mt. Vernon, Iowa.

D. P. Shove, Poultry—Fall River, Mass.

Lewis Roesch, Grape Vines, Fredonia, N.Y.

E. M. Bullard, Poultry and Seeds—West Swanzey, N. H.

Chas. Dadant & Son, Bees, Honey and Foundation—Hamilton, Ills.

S. W. Morrison, M.D., Carniolan Queens—Oxford, Pa.

C. D. Black, Bees and Queens—Brandon, Iowa.

Berlin Fruit Box Co., Sections and other Apiarian Supplies; also Berry Boxes—Berlin Heights, O.

A. F. Manum, Bees and Poultry—Bristol, Vt.

A. I. Root, Aparian Supplies—Medina, O.

W. Atlee, Burpee & Co., Seeds—Philadelphia, Pa.

THE HONEY MARKET.

NEW YORK.

White clover, 2 lb. sections, 12 to 14c.; 1 lb. sections 15 to 17c., with slow demand. Buckwheat, 1 lb. 11c.; 2 lb., 10c. Goods moving very slow. Can guarantee these prices only for extra fancy goods.

THURBER, WHYLAND & CO.

Feb. 24th, '88.

BOSTON.

We quote you our market on honey as follows : 1 lb. white, 16@17; 2 lb. white, 14@15.

Beeswax, 25c. Sales slow.

BLAKE & RIPLEY.

March 8, 1888.

PHILADELPHIA.

White clover, fancy, 1 lb. combs....17 @ 18
" " " 2 lb. " ....14 @ 16
Buchwheat " 1 lb. " ... 12 @ 13
" " 2 lb. " ....10 @ 11

Common or dirty and leaky, must sell somewhat lower.

Extracted per lb. 6@8c—small glasses preferred.

Choice yellow wax per lb. 22 @ 23c.; inferior 20 @ 21c.; white wax 26 @ 28c.

PANCOAST & GRIFFITHS.

Nov. 10, '87.

CINCINNATI, OHIO.

There is a quiet but fair demand for honey of all kinds. Extracted honey brings 4@9 c. a lb. on arrival. Demand exceeds arrivals. The demand for comb honey is rather tame. It brings 16@20 c. a lb. for best in the jobbing way. Demand is good for beeswax, which brings 20@22 c. a lb., for good to choice yellow, on arrival.

CHAS. F. MUTH & SON.

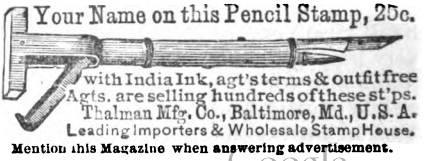
Dec. 12, '87.

CHICAGO.

Honey is selling slowly, and the offerings are quite large. Best grades of white comb in cartoons and other fancy packages bring 16 to 17c. per pound. Grades off in color, etc., 15c. Frames containing 1½ to 2 pounds, easy at 13 to 14c. Extracted steady at 8 to 6c. Beeswax 22 to 23c., as it arrives.

R. A. BURNETT,
161 South Water street.

March 24, 1888.



Mention this Magazine when answering advertisement.

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EXCHANGE DEPARTMENT.

Exchanges not to exceed 6 lines, inserted free.

WILL Exchange first-class Homing Pigeons, stock represents some of the best lofts in the country, for a colony of Italian Bees or a 22 calibre Ballard or Stevens Rifle. Address Jos. A. Eibel, Lancaster, Pa.

WANTS.

Advertisements in this column not to exceed 8 lines, 5 cents per line for each insertion.

WANTED—To correspond with parties about a better hive than ever used. B. H. Franklin, Sturbridge, Mass.

WANTED—To exchange, Bees and Queens for printing press and outfit or offers. Circulars free. G. D. Black, Brandon, Iowa.

WANTED—To exchange or sell Chaff Hives painted, with ten standing Quimby frames with good clean combs, very cheap. Also one 4-frame honey Extractor, new. Simplicity, Chaff, or single wall Hives. Mrs. Oliver Cole, Sherburne, Chenango Co., N. Y.

WANTED—A purchaser for pure Italian Bees in best hives, double-walled in winter, eight frames 12¼ x 12¼, at $5 per colony; or same in light, strong shipping boxes, 75c. less. Liberal discount on large lots. Dr. G. W. Young, Lexington, Mo.

Mention this Magazine when answering advertisement.

All advertisements must be received by us on the 18th of the month, to insure insertion.

FOR SALE.—Good, well-improved farm of 127 acres, and Apiary, two miles from county seat and railroad. No postals. Address, J. Osborn, Amherst, Va.

Mention this Magazine when answering advertisement.

BRONZE!

For Sale—Eggs of Pure Mammoth Bronze Turkeys. The bronze are the largest turkeys known. Eggs, $2.00 per 9. Send for 2-page circular.

WALTER H. BRUBAKER, Dakota, Ills.

Mention this Magazine when answering advertisement.

GREAT REDUCTION IN PRICE OF BEE SMOKERS.

To the readers of the Magazine, the Smoker formerly manufactured by its Publishers, both past and present, needs no introduction; its reputation has been well established, neither do I appear as an entire stranger to them, having for a number of years made the Smokers for the proprietors of the Magazine, who have now retired from the supply business. I will continue to make them at a greatly reduced price for the bee-keepers direct.

Large size, 3 inch barrel, $1.15; former price, $1.50,
Smaller size, 3½ in. " $1.00; " " $1.25
By mail, add 20 cents for postage.

Address, *A. E. CUNKEY.*
505 Central Ave., Jersey City Heights. N. J.

Also dealer in Bees, Queens and Bee-Keepers' Supplies.

OLD CUSTOMERS.

I am ready to receive orders for Eclectic and Chaff Eclectic Hives and fixtures, such as Sections, Frames, Box Holders, and Crates. Also Foundation, Smokers, Veils, and other apiarian supplies. Write for prices.

JOHN ASPINWALL,
Barrytown, N. Y.

CHENANGO VALLEY APIARY.

Headquarters in New York State for extra fine Golden ITALIAN QUEEN, untested, $1.00; tested, $1.50; select tested, $2,00 in June. For particulars and full price list of Bees Nucleus. &c., send for free price list. Reference if requested.

MRS. OLIVER COLE,
Sherburne, Chenango Co., N. Y.

Mention this Magazine when answering advertisement.

THE WONDER OF 1888.

FREE! ABSOLUTELY FREE!

One year's subscription to *Mitchal's Journal* of Bees, Poultry, Pets and Home Interests, only 35 cents, and 12 volumes of standard literature (Scott's Works, Tennyson's Poems, etc.), *absolutely free!* Sample copies on application.

C. R. MITCHAL, Ocala, Fla.

Mention this Magazine when answering advertisement.

NUCLEUS! NUCLEUS! NUCLUES!

I make a specialty of 2, 3 and 4 frame Nuclei, Queens aud full Colonies of the finest Italians. Free Price List. Address

FRANK A. EATON, Bluffton, O.

Mention this Magazine when answering advertisement.

1884. **TAR-HEEL APIARIES,** 1888.

ABBOTT L. SWINSON,
PROPRIETOR,
Golbsboro, North Carolina.

AMERICAN ALBINO & GOLDEN ITALIANS

Untested warranted Queens, each, April to October, $1.00; Virgin Queens, one-half the price of warranted queens; Extra Selected Virgin Queens, 20 c. extra, each; Best Choice Breeding Queens, $5.00; Nuclei, 75c. per each L frame of brood; Bees $1.00 per pound. Sample Bees and Drones, 10 c.

I bred the best and finest bees and queens to be had. There are allowed no queens in my Apiaries, except part of their workers show four bands.

Placed by Goodspeed Adv. Bureau Thornhill, N. Y.

HAVE YOU SEEN IT!

The Bee-Keepers' Advance & Poultrymen's Journal.

Only 25 cts. per year. Sample copy free.

Address
J. B. MASON & SONS,
Mechanic Falls, Me.

Mention this Magazine when answering advertisement.

$5,000 WILL PURCHASE

Greendale Nurseries, including over $5,000 worth of Young Nursery Stock. See Catalogue. Also land, buildings and increasing trade. Established by 12 years extensive advertising and square dealing. Located in City limits of Worcester, Mass Buildings and land cost $5,500. On account of poor health will sell all for $5,000, or exchange for other paying property in York State. Address

OSCAR CLOSE,
Worcester, Mass.

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COLUMBUS
BuggyCompany

COLUMBUS, OHIO.

MANUFACTURERS OF FIRST-CLASS

BUGGIES, SURRIES, Phaetons, Park Wagons, Light Carriages.

Our work is Fully Guaranteed and absolutely reliable.

BEST For Livery Service! For Family Service! For Pleasure Driving!

POINTS OF SUPERIORITY.

Superior Material and Workmanship,
Fine in Finish,
Easy in Riding Qualities,
Unsurpassed for Durability,
Cheapest for Quality of Goods in the World.

Mention this Magazine when answering advertisement.

THOS. G. NEWMAN & SON,

—DEALERS IN—

BEE-KEEPERS' SUPPLIES.

Illustrated Catalogue sent free.

923 and 925 West Madison St., CHICAGO, ILLS.

Mention this Magazine when answering advertisement.

PRACTICAL HINTS TO BEE-KEEPERS'

—SENT FREE—

Address, AMERICAN APICULTURIST,
Wenham, Mass.

Mention this Magazine when answering advertisement.

300 COLONIES OF ITALIAN BEES for sale at $5.00, in movable frames.
G. H. ADAMS,
Troy, N. Y.

Mention this Magazine whenanswering advertisement.

FREE TO POULTRYMEN.

Guide to Successful Poultry Keeping, A complete Poultry Book, giving the fullest information concerning this profitable pursuit. ILLUSTRATED HANDSOMELY. Not an advertising circular, but a careful compilation covering the entire subject, **SENT FREE** to all sending only 8 cts. (½ price) for our peerless 60 c. Monthly **3 months** on trial. We are determined to introduce to you a home journal that you will like.

The Rural Call, Columbus, O.

Mention this Magazine when answering advertisement.

ROPP'S
Commercial Calculator.

Practical Arithmetic made easy, simple, and convenient for ALL—whether *pro*ficient or *de*ficient in figures—by this unique and wonderful work. An entirely *new*, improved, and greatly enlarged edition has just been issued, which is unquestionably the most useful, practical, and comprehensive work on the "Art of Rapid Calculation," ever published in any language.

It embodies all the *practical* features found in Higher Arithmetic, Lightning Calculators, Ready Reckoners, in Interest, Discount, Exchange, Wages, Log and Lumber Tables, besides a great many *original* Rules and Tables, which really are the most essential and valuable things in the book.

The first part contains 125 commercial Tables of *ready*, or instantaneous, calculations in all kinds of Grain, Stock, Hay, Coal, Cotton, Merchandise; in Interest, Wages, Trade Discount, Exchange; in measurements of Logs, Lumber, Land, Cisterns, Tanks, Bins, Wagon-beds, Corn-cribs Cord-wood, and Carpenters', Plasterers', Masons', and Painters' work.

The seond part is a complete Arithmetic, in which all its rules and principles, from Numeration to Mensuration, are clearly stated, fully explained, and practically applied, giving all the *simplest*, *shortest*, and most *convenient* methods known for *rapid* calculation. Among its many *original* features, we have only space to mention a very simple process for adding long columns of figures by "Casting out the tens," whereby the mind is greatly relieved, and errors avoided; entirely new methods for shortening the operations in Multiplication and Division, in Merchandising, in computing Interest, True, Bank, and Trade Discount, Profit and Loss, Stocks and Bonds, extracting Roots, and especially in practical Mensuration, all of which will prove highly interesting and beneficial to every one who appreciates this great and useful science, particularly young people, who desire to become proficient in rapid methods of calculation.

The book is neatly printed on finest quality of paper, elegantly bound in pocket-book form; consists of 128 pages, and the No. 3 and 5 have a renewable Account-book attached, which contains self-instructing formulas for keeping a systematic record of receipts and expenditures—in fact, all about bookkeeping required by the masses. Is also accompanied by a silicate slate, pocket for papers, and apart from its mathematical merits, is one of the most convenient and desirable pocket memorandums ever offered to the public.

No. 1, Fine English Cloth, Silk Finish - - $ 50
No. 3, Am. Russia Leather, Acc't, b'k, slate, 1 00
No. 5, Russia Calf, Gilt edges, " " 1 50

Be sure and designate by number which you want when you order. Address,
BEE-KEEPERS' MAGAZINE,
Barrytown, N. Y.

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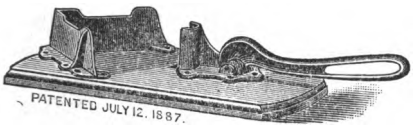
A MACHINE
—FOR—



Putting Together One Piece Sections.

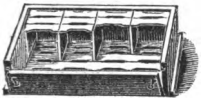
It will pay for itself in one day's use. No Bee-Keeper can afford to be without one. Send to your supply dealer or to

WAKEMAN & CROCKER,
MANUFACTURERS.

PRICE $2.50. **LOCKPORT, N. Y.**

Correspondence with supply dealers solicited.

Mention this Magazine when answering advertisement.



EATON'S IMPROVED Section Case. Latest and best. Send for free Catalogue. Address
FRANK A. EATON,
Bluffton, Ohio

Placed by Goodspeeds' Adv. Bureau, Thorn Hill, N.Y.

HELLO! WHAT IS IT?

"Did you know that Clark was selling the best Smoker made?" "Is that so?" "Yes. And not only the best but the cheapest, it will outlast any two of other makes." Send for illustrated price-list of Bee-keepers' supplies free.

W. E. CLARK, Oriskany, N. Y.

Mention this Magazine when answering advertisement.

MONEY

Saved to all who are interested in Plants, Fruits or Gardening by subscribing for THE PLANTER'S GUIDE, an 8-page monthly quarto, 50 cents per year with Premium. Plain and practical in all its departments. Sample copy free. Address

PLANTER'S GUIDE,
Ainsworth, Wash. Co., Iowa.

Mention this Magazine when answering advertisement.

SECTIONS, SECTIONS

We are turning out the very finest one-price sections in the market and sell them VERY CHEAP. Also bee hives, frames, shipping crates, EXCELLENT and very cheap, Write for free illustrated catalogue.

G. B. LEWIS & CO.,
Watertown, Wisconsin.

Mention this Magazine when answering advertisemen.t

THIN FOUNDATION.

In order to convert into cash, as rapidly as possible, some of our machinery, and all the wax remaining on our hands at the close of the business, we have exchanged them with Messrs. J. VanDeusen & Sons for some of their Superior Thin Flat Bottom Foundation in 25 lb. cases, which we will sell, by the case, at 50 cents per pound. THIS IS A GREAT BARGAIN!

JOHN ASPINWALL,
Barrytown, N. Y.

Binders for Magazine.

Nothing could be more valuable or economical than these binders for preserving your MAGAZINE. No lost numbers. They save having your paper bound and cost but 50 cents post paid. Send for one.

BEE-KEEPERS' MAGAZINE,
Barrytown, N. Y.

BLACK BREASTED RED GAMES
THE KING OF DOMESTIC POULTRY.

My fowls have unlimited range. Standard birds bred from the finest strains. The fowl for the farmer and fancier. Hawks can't take them. Are excellent layers and for table they stand unequalled. For sale in pairs or trios. Eggs for hatching during the season. Prices Low. Send for illustrated circular. Address

H. H. FLICK, Lavansville,
Mayfield Farm. Somerset Co., Pa.

Mention this Magazine when answering advertisement.

FOR MAKING BEE-HIVES
Barnes' Patent Foot Power Machinery

Complete Outfits for actual workshop business.

With them Builders, Cabinet Makers, Metal and Wood Workers, compete with steam power. Machines ON TRIAL if desired.

Proof of value, prices, full detail, illustrated catalogue free.

W. F. & JOHN BARNES CO.,
Address No. 397 Ruby St. *Rockford, Ill.*

Mention this Magazine when answering advertisement.

FREE

Prettiest Illustrated SEED-CATALOGUE ever printed. Cheapest & best SEEDS grown. *Gardeners trade a specialty. Packets only 3c.* Cheap as dirt by oz. & lb. 100 000 pkts new extras free.

R. H. SHUMWAY, Rockford Ill.

Mention this Magazine when answering advertisement.

The Canada Honey Producer,

20 PAGE MONTHLY.

40c. per Year. 3 Subscriptions at one time $1

Sample copies free.

E. L. GOOLD & CO.,
Brantford, Canada.

Sole right in Canada for Shuck's Hives, &c.

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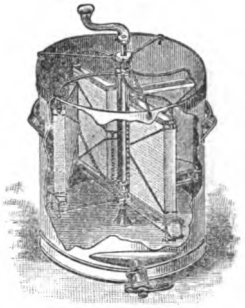
NEW YORK.



MASS.

FOREIGN ORDERS SOLICITED.

EASTERN DEPOT

(Bees.) —FOR— (Queens.)

EVERYTHING USED BY BEE-KEEPERS.

—o—

Exclusive manufacturer of the

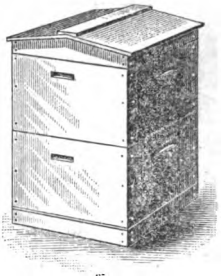
Stanley Automatic Honey Extractor.

Dadant's Foundation, Wholesale and Retail.
White, Poplar or Basswood Sections,
One-piece, Dovetail or to nail,
Any quantity, any size.

Complete machinery, finest work. Send for Handsome Illustrated Catalogue, Free.

E. R. NEWCOMB.
Pleasant Valley, Dutchess Co., N. Y.

NEW JERSEY.



CONN.

Recorded Percheron and French Coach Horses.

Two importations this year. Nearly 200 of these popular breeds on hand. Every animal recorded with extended pedigree in their respective stud books. Choicest breeding and individual excellence combined. Coach stallions all purchased before the French government made its selection. Do not buy coarse, logy horses unsuited to your section but come and see large, fine horses with the best of action. They will cost you no more. Send for illustrated catalogue.

JOHN W. AKIN,
Scipio, Cayuga Co., N. Y.

Mention this Magazine when answering advertisement.

OLD CUSTOMERS

—OF—

ASPINWALL & TREADWELL.

I have received so many inquiries from old customers of the firm asking where they can get supplies to fit our old specialties, I would say that if by chance I cannot effect a sale of the business or arrange with some one to manufacture the goods we used to handle, I shall, the coming season, keep in stock a line of these goods *for old customers only.* New customers not already having our goods need not apply, as I am not desirous of running a general supply business, but do what I have promised simply to protect the interests of customers who have dealt with us supposing that we should continue in business. All of which will be duly announced in the Magazine.

JOHN ASPINWALL,
Barrytown, N. Y.

THE ROYAL OFFER.

ROPP'S COMMERCIAL CALCULATOR, a book sold everywhere for 50 cents, we will send you FREE, for one new name as subscriber to MAGAZINE and 50 cents.

Get a new subscriber at once and avail yourself of the unusual offer. We have never been able to place before our subscribers a more engaging offer than this. It is certainly worth your while to try. We will furnish sample copies of MAGAZINE free to all those who may desire them. Address

BEE-KEEPERS' MAGAZINE, Barrytown, N. Y.

E. & O. WARD,

Produce Commission Merchants.

We give our personal attention to the care and sale of all kinds PRODUCE including HONEY and BEES-WAX.

Send 10 cents in postage stamps for our Circular of advice of great value to shippers in regard to preparing, packing, and shipping produce to our market. It also contains a recipe for preserving Eggs. Address

279 WASHINGTON ST., bet. Warren and Chambers, NEW YORK.

We employ no Agents.

Reference: Irving National Bank.

Mention this Magazine when answering advertisment.

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Vol. XVI. JUNE, 1888. No. 6.

THE BEE-KEEPERS' MAGAZINE.

Devoted to Bee Culture

JOHN ASPINWALL,
EDITOR AND PROPRIETOR,
BARRYTOWN-ON-HUDSON,
NEW YORK.

H. Gilmour, Inc. N.Y.

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THE BEE-KEEPERS' MAGAZINE.

50 CENTS PER YEAR.

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Subscription Rates

OF THE

BEE-KEEPERS' MAGAZINE

One Year ..... 50 cts.

Six Months ..... 30 "

Specimen Copy Free.

Postage to Foreign countries belonging to the Postal Union is 12 cents per year for each subscription. Others outside of the Union require to send 24 cents.

EXPIRATION.

Subscribers finding this paragraph marked with Blue pencil will know that their time has expired. Another number will not be sent unless subscribers renew or drop us a postal saying they desire to continue, and will pay later. Bee-keepers are almost invariably honest, and we shall be glad to continue sending you the MAGAZINE if you will just let us know you desire it. Watch the date on your wrapper near your name.

Make Money Orders

Payable at RED HOOK, N. Y.

No stamps taken unless impossible to send money otherwise. Send one-cent stamps if possible.

REDUCED

ADVERTISING RATES.

Our rates are only *10* cents per line for one insertion, until further notice, subject to the following Discounts:

5 per cent. off on 3 insertions.

10 per cent. off on 6 insertions.

20 per cent, off on 12 insertions.

12 lines to the inch.

Special rates on large advertisments.

Address all Communications and remittances to

BEE-KEEPERS' MAGAZINE,

BARRYTOWN-ON-HUDSON,

NEW YORK.

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BARRYTOWN, JUNE, 1888.

EDITORIALS, &c.

INSTRUCTIONS TO CORRESPONDENTS.

Correspondents writing matter for publication will confer a favor on the editor by writing on only one side of the paper, and giving their full name and address. The latter will be given in the MAGAZINE, unless there is a request to the contrary. Kindly write matter for the MAGAZINE on a separate sheet from business communications, so that we may not have to mutilate business letters to get at the literary matter. Rejected manuscript cannot be returned unless stamps are forwarded for that purpose.

White Clover.

MRS. L. B. FLEMING.

My little maiden came to me,
Her small hands brimming over,
Not with the garden's choicest flowers,
But only sweet, white clover.

I took her gift, the while my thought
The long years traveled over—
When I, like her, with busy hands
Made wreaths of sweet, white clover.

I dream my childish dreams again,
In fairy land a rover,
A magic garland, this, I ween,
Though only sweet, white clover,

Yet much of life's best sweetness we
In homely things discover,
As honey bees pass gaudy flowers,
To seek the low, white clover.

MR. L. C. ROOT, one of our foremost bee-keepers, tersely remarks, in an essay read before the New York State Convention, last winter, that what we need to maintain present prices on honey is more thorough organization among the apiarian societies, and the opening of new channels for the use of this valuable sweet. It seems that the money making bee-keeper fails very often to see to see it in this light. Now, Mr. Root was for many years a very successful money making bee-keeper, but at the same time he looked further than the end of his nose.

We cannot see how last fall's market prices can be maintained unless we can open new channels for the honey when the crop is an average one. It must be borne in mind that there was a short crop last year; that as soon as the demand for honey was over, even this crop was not entirely disposed of, when the market closed, and prices began to fall. January 1st may be considered the end of the honey market season and it will be well to bear in mind that prior to that date is the time to dispose of honey in the big markets. Home markets are open till March 1st and sometimes later.

Remember, quotations do not mean sale—you send your goods to the commission man and expect immediate sale. Honey is *not* a staple article of diet, and they therefore should be willing to sell "way down" out of season. You would find, probably, few consumers, though speculators might buy it so as to realize a high price next fall. In view of these facts, the importance

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of opening of new channels for the sale of honey cannot be over estimated. This work cannot be done by an individual, but must be participated in by all.

SOME time back we received from Messrs. Schacht & Lemke their annual market review of the honey and bees-wax business of California, for 1887. They give as their receipts of honey for 1887 1,300,000 lbs, 900,000 lbs. which was produced in 1886 as against 2,500,000 lbs. received in 1886, in other words the facts they give would show that five times more honey was produced in 1886 than in 1887. They also state that no complaints have been received of adulteration, claiming that for California honey the prices have been so low that no money would be made in such a process, and besides apiarists and dealers would not attempt to destroy the increasing demand for our pure California honey. Perhaps after a time such pointed facts may pierce the thick hide of our eastern dealers and they will see how beautifully they are ruining their own prospects, as well as those of the bee-keepers, by adulterating extracted honey. But bee-keepers are also to blame for the state of things among our dealers. They refuse to combine and form a strong organization, and expect that "expensive meetings" are going to accomplish great wonders. What is really wanted is a business organization having strength enough to handle these rascals without gloves.

IN an editorial in the *British Bee Journal*, which we republish in this number, this sentence occurs: "By referring to Nos. 57, 58 and 60, it will be seen that these are all comb honey yet they are adulterated." We think it only justice to American bee-keeping and American comb honey to say that this so called comb honey was put up *à la* Hoge, viz., a *little piece of pure* comb honey in a big jar of glucose. This was not section honey. Not only were the contents a swindle but the label a lie. Will the *B. B. J.* kindly correct the statement in justice to American comb honey?

SUCCESS OF THE HONEY PRODUCERS' EXCHANGE.

We are glad to note that the Honey Producers' Exchange is running along smoothly, and that its reports are arranged better and are more comprehensive than any system of reports now published. A man who loses the chance of knowing the *inside* of the market for $1 will surely lose ten times that amount by either marketing his honey too early or too late, or else below what he ought to get. Send one dollar to Mr. Geo. H. Knickerbocker, Pine Plains, N. Y., and become a member at once. Remember this is a SECRET ORGANIZATION and no one but those who are members know what are in the reports, so you see a member has the advantage over those who do not belong to the exchange. Become a member without delay.

AGRICULTURAL and other papers delight in composing wonderful articles on the bee. An article clipped from one of these enterprising papers is credited to the *Boston Bee Journal*. No such bee paper exists. We believe we have read part of this article in the *British Bee Journal*. The first part contains some absurd statements. Many papers seem to delight in "improvising" articles to delight the uninitiated.

Your "Beginners' Department" is of valuable service to me. O. H.

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For the Bee-Keepers' Magazine.

MOLLY HEATH'S VENTURE.

A Serial Story.

BY JULIA ALLYN.

PART SECOND.

(Continued.)

One bright Saturday morning in November we find Robert and Molly Heath busy over their apiary accounts. Rob has faithfully kept the various items of expense and profit in his cash book, and to-day he is summing up the amounts and the other members of the family are eagerly waiting to learn the results.

"Well, Molly, what do you think we have gained this year?" says Rob, after half an hour of silent figuring.

"Lots of experience to begin with, and that is worth considerable," said Molly.

"A good measure of health, which is the best kind of wealth," said Mrs. Heath.

"Quantities of useful information," said Nan.

"Much sweet honey," said Ted.

"Some good hard cash, I hope," said Tom. "Let us have the round sum, Rob."

"Well, here are the principal items. I may have forgotten to set them all down:

Sold 12 lbs. of comb honey to Mrs. Fry at 30 cts.	$ 3 60
Sold 24 lbs. of comb honey on Fourth of July, at 30 cts	7 20
Sold 2 hives of bees, fully equipped, to Mr. French, for	24 00
Sold 120 lbs. of extracted honey at 25c.	30 00
" 3 hives of bees, fully equipped, (one ornamented hive) to Mr. Fry	40 00
Sold 50 lbs. of comb honey at 30 cts.	15 00
	$119 80
On hand 9 strong colonies at $12	108 00
" " material for hives, foundation, etc., $25	25 00
	$252 80
Expended for materials, etc.	10 00
Balance on hand	$242 80

Taking out the stock in trade valued at $133, we have $109.80, and I think we had better put one hundred dollars in the bank to the firm's credit, and by investing the remaining $9.80 in materials we will have enough on hand to furnish us with employment during the winter months in preparing for the spring trade. What do you think of it, Molly?"

"I think our first year's work has been quite a success. Of course if Uncle had not sent us our extra hives and most of our materials and lent us his extractor our expenses would have been much greater, but next year we will hope to do even better than we have this year, for, although I doubt if we get as high a price for our honey, we shall start with nine colonies instead of six, and our extra hives and equipments all ready furnished, besides having one hundred dollars in the bank," said Molly.

"Well, I think we ought to feel quite repaid for our labor, besides the work, we have had a great deal of pleasure out of it," said Tom.

"I think delivering the honey was one great part of the fun," said Nan. "What jolly rides Tom and Ted and I have had on Saturdays. The day we took the honey to Mrs. Fry and she kept us to lunch we had such a fine time. She thought the ornamented hive Rob and Tom made showed a great deal of taste and skill, and it certainly did look very attractive on the lawn. Fritz wants Rob and Tom to go out to Mr. Fry's, next Saturday, and show him how to prepare the hives for winter. He is very much interested in bees, and says he would like to have a dozen colonies or more. Mrs. Fry says that she and her husband are reading, with enjoyment, the books and papers on apiculture they have bought, and after they have read them they lend them to Fritz, who is becoming well posted on the subject."

"Well, it is astonishing what a field of information is opened to one in those books. The more one reads the more one wants to. We are going to take up botany this year at school and what I have learned about plants in bee books makes me eager to begin that study. Then natural history is commenced in them, too. I mean to study with all my might this year," said Tom.

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Molly and her mother exchanged glances of pleasure and approval at Tom's remark, and Molly said, "Bravo, Tom. Next year we must admit you into the firm as something more than 'silent partner'," and then she continued, "Now boys, as we have closed up our cash accounts for this season let us look through the hives and prepare them for the winter. What do you think about leaving them on the summer stands?"

"I think we had better try out-of-doors wintering. You said Uncle John left his out last winter and only lost one colony," said Rob.

"Well, then, we will decide to do so. Now let us examine the hives. In September we found that hives number five and seven were not as strong as the others, and we supplied them with empty combs and gave them a pint of food every night. Now we will see if the queen has laid well and has sufficient brood started. It is just as important that the colonies should be in good condition now, in order to winter well, as in the spring to gather honey, for their prosperity in the spring depends much upon preparation now. Each colony should cover at least four large frames, but it is better still to have them cover five or six frames. The sun is shining so brightly to-day that the air is quite warm and we can safely open the hives; see, quite a number of bees are on the wing! There, Rob, bring the smoker, we will look first at number five. Indeed the colony is much stronger than when we last examined it. There are five frames densely covered with bees and the other five frames well stored with honey. I think we can feel assured that the colony will thrive during the cold weather. Now, having laid a frame prepared for the purpose right over the ones where the bees are clustered, we will lay over it a piece of bagging or burlap and on that spread about a peck of soft, loose chaff, or enough to fill the top of the hive, and then put on the cover and leave them, without much fear of loss from the severity of the winter. Some make a chaff cushion by taking pieces of burlap the width of the hive, sewing them together and then filling it loosely with chaff, place on top of the frames containing the bees. Others fill the top with pieces of carpet or bagging and straw. Now for number seven. This does not seem as strong a colony as the other. Only four frames covered with bees, but many of them are young ones, and the queen is young too, so she will probably begin laying early, and with four frames well supplied with honey; we will pack them with division boards on each side and above, just as we did the other one, and leave them to their fate, which we trust will be a propitious one."

"Do you think this weak colony would do better in the cellar?" asked Tom.

"We will try it this winter out of doors. Of course in this climate we cannot tell what the weather will be, some winters being more severe than others. Some bee-keepers, I know, leave half of their hives out-of-doors and take the other half into the cellar, and thus are sure that part of them at least will winter well. Other bee-keepers combine their colonies and make all of them very strong. We must learn by experience. I believe when they do winter well on the summer stands they are said to build up faster in the spring than if they had been kept in the cellar."

"Now we will examine and pack the other hives. They all seem to be in excellent condition. I presume we could have extracted more honey, but I thought it best to leave an abundant supply to winter on. It is much better to have some left over in the spring than to be obliged to feed them very early, although sometimes, even when they have stores on hand, it is well to feed a little as soon as honey is brought into the hive, from whatsoever source it comes, the queen is stimulated to lay. You noticed, did you not, Rob, that the frames are placed a little farther apart for wintering than we had them in the summer so that the bees can cluster readily and thus by added warmth keep each other alive. You find, too, that scarcely any drones remain, for as soon as the swarming time

is over the worker bees drive them forth to die?" said Molly.

"Well, the drones have an easy time of it during the summer months, but it seems rather hard on them to turn them out of doors like that in the fall," said Tom.

"It happens not only in the fall, but in other parts of the year when honey is scarce. I think it is a wise provision of nature and an economical arrangement, for certainly the queen and workers deserve to be cared for first of all," said Rob.

"Now, boys, let us go into the work-shop and plan our winter's work," said Molly. "What a pile of materials we have. Well, we will probably use them all. We shall want nine extra hives for our own use and a dozen or so for our customers in the spring, and this work will keep you quite busy Saturdays."

"I just enjoy putting the hives together and making the frames and surplus boxes," said Tom.

"And I can help in wiring the frames," said Nan.

"Molly, you remember we were to get up a "lecture on apiculture," said Rob.

"Yes, and this is the way I wish to do it," said Molly. "I want each of you to write out a short essay on bee-keeping, and I will look them all over, and taking out the important items of each, condense them into one paper and Rob can read it at his lyceum meeting in December. Tom, you can draw nicely and must furnish illustrations for the essay, and in order to have it ready in time, we must begin next week and work on it evenings."

"All right, we will try and do the best we can," said they all unitedly, much pleased with Molly's suggestion, and feeling a certain pride in contributing to the success of the "lecture."

Poison from bees, hornets, spider bites, etc., is instantly arrested by the application of equal parts of common salt and bicarbonate of soda, well rubbed in on the place bitten or stung. --*Ex.*

For the Bee-Keepers' Magazine.

Comb Foundation.

WILL M. KELLOGG.

I was among the very first to try the use of foundation, and have never quit its use of it since, and don't expect to as long as I keep bees, and that will be as long as I keep anything. I use much less now than I used to, for my ideas have been changed, and also I have a large amount of hives and cases full of clean empty comb for use in extracting, hence I do not need to use much of foundation each year for that purpose. But when I do ever need it for upper stories, or for brood frames, I very much prefer to use whole sheets of it, filling the frames nearly full, and of a thickness made by two dips. Never having had any trouble with sagging, except the very first, I have had no cause to need the wired foundation. But it has been from the way I managed, for it will not always do to hive a swarm on to a hive full of frames all filled with foundation, for the weight of the bees and the heat very often breaks down a large part of the sheets. I have always been very cautious in doing this, usually getting full sheets built out one or two at a time, in full stocks and placed at the side of the hive.

For section honey I differ with many as to the use of foundation. I do not use any but a narrow strip at the top of the section, say three-fourths to one inch wide, and that of very thin foundation, only one dip. A starter ensures one straight comb in each section, and where honey is coming in very fast, the sections will be filled fast enough to satisfy any one. And during a time when bees are storing honey very slowly they neglect to thin out many times, even thin foundation enough so but what there is a little harder substance in the center than natural comb contains.

Working for both comb and extracted honey, as I do I find it very handy, when a short crop comes to do but little at producing comb honey, letting the bees do their best filling the extracted combs that are already built. When but very little honey is coming

in, for foundation placed in sections then and given to the bees will be nicely drawn out and a small comb built on it, leaving them clean and dry for the next season's work. I find that bees will more readily go into sections with only top starters when given climbers, that is, fasten a part of the strips of foundation into the sections at top and bottom, up which the bees climb and work before they would begin without them.

Oneida, Ill.

From the Bee-Keepers' Review.

The Hiving of Swarms.

R. L. TAYLOR.

In preparation for the hiving of swarms when the time for their issuing comes, while making an examination of the several colonies in my apiary in in the spring, I seek out each queen and clip one of her wings if one be not already clipped. I find it quite an advantage to do this before young bees begin to hatch largely because then the bees are comparatively few and the queen is generally easily discovered.

Then in anticipation of the advent of the swarming season other preparations must be diligently attended to. Hives must be all ready for immediate use and in a cool shady place as convenient as possible to the apiary. If the apiary be large, three or four baskets will be necessary and a good supply of cages for the queens as they issue with swarms is indispensable. The cages I use differ from anything I have seen described and may be made thus: Take a piece of soft wood 5/8 x 1 inch 4 1/2 inches long and with a 3/4 or 7/8 inch bit bore a hole through it from side to side so near one end as to leave at that end 1/2 inch of solid wood and cut the stick carefully and squarely in two through the center of the hole. Then enlarge the half circle in the larger piece by boring through it, (the stick) one or two holes with a smaller bit and smooth out with a knife. Also form a piece of wire cloth, four inches long and about three and a half inches wide, around a piece of wood 5/8 x 1 inch, beat with a mallet and weave smoothly together where the edges meet, then withdraw the wood, and having pushed into one end of the wire cloth tube the shorter piece prepared as above, tack it firmly in place. Now push the longer piece into the other end of the tube for a stopper, and you have a cage always ready, convenient, safe and durable.

With these preparations all made I will suppose I am set to hive the swarms in a large apiary on a warm day in the height of a swarming season. Everything likely to be needed, including heavy wire hooks for suspending the baskets, a pair of large white cotton sheets and a lighted smoker, are at hand in the shade of a centrally located tree. It is nine o'clock, and a hive near by spurting forth excited bees indicates that work has begun.

With a cage in my hand I step to the side of the hive and watch for the appearance of the queen in front. In one or two minutes she is seen climbing the blades of glass and trying to take wing. The open end of the cage, the stopper being withdrawn, is held immediately over her, when she at once enters, the cage is closed, placed in a basket and the basket hung by its hook in a tree out of the sun at a place where the swarm is likely to find the queen. I then take a new hive to the one sending out the swarm, removing the latter from its place and turning it around, put the new hive where the other stood and change the section cases from the old hive to the new. In the meantime the swarm has found the queen and is soon clustered in the basket, when I pour the bees out upon the ground in front of the hive prepared for them and when they fairly take up their march for their new home I release the queen and see that she runs into the hive, because many of the bees will refuse to go in until she does. This is hardly done before another swarm issues. I cage the queen and arrange the hives as before, but the swarm, instead of finding the queen in the basket, begins to cluster at another place so I at once remove the basket and hang it near that point and the swarm at once takes possession of it.

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Before this one is fully hived, another swarm is in the air, and by the time I have caged its queen it discovers her absence and is already returning as I place their new hive in position. I hasten the return by placing the queen at the entrance, and as soon as the bees are rapidly alighting I release and run her in.

It is now ten o'clock and swarming has fairly begun. Two swarms now come out almost at the same moment and unite in the air. I cage their queens but notice that the swarms are attracted by the commotion at the hive into which the last swarm was put and are already beginning to alight there. I push the queens into my pocket, snatch a sheet and the smoker, and spreading the former over the hive threatened with invasion, with a few puffs of smoke from the latter I drive away the flying swarms, when they begin to cluster on a neighboring branch of an apple tree. I at once put each queen in a basket by herself and hang the baskets together where the cluster is forming. Soon one basket has its share of the bees and I steal it away and hang it out of sight in thick foliage or set it in the bee cellar.

Now other swarms come out—five in pretty quick succession—so I take the other basket with the swarm and hang it in plain sight on a branch favorable for holding a large cluster of bees and convenient for shaking them off. Here, attracted by the swarm in the basket, all swarms will for the present congregate. I now proceed first to cage all the queens out, and all others as they come out, and put them in baskets hung near the cluster or out of the way in the shade till wanted. Then as I have time I arrange the hives and hive swarms taken from the general cluster, giving each a queen till all the bees are distributed.

It would make a long story to recount all the expedients at times resorted to to induce the bees to assist in making their hiving easy, but the foregoing indicates the general method pursued. Sometimes a swarm will cluster out of reach from the ground. In such cases, if practicable, a basket with the queen is hung under the cluster near the ground and with a little shaking the cluster drops down, the queen is soon discovered and the swarm gathers in the basket, or, if more convenient, a pole is used with a hook for the basket, say twenty inches from the upper end. The basket is raised with the pole and held under the cluster while the latter is jarred off with the upper end of the pole.

With unclipped queens on a good day for swarms I should be almost in despair. I never had but one queen superseded that I thought was superseded on account of clipping, and she had all four wings cut off short. My queens are not superseded soon enough to please me. I find too many that are approaching three years in age.

I am looking for a better way of managing swarming. Will the queen trap help? Who can give us new light?

Lapeer, Mich., May 5, '88.

From Gleanings.

EXTRACTING HONEY.

E. France Gives His Method, and Also How He Grades it for Market.

E. FRANCE.

I am asked to give some thoughts on how to get the best extracted honey. First, have a location well supplied with the best honey producing flowers, which, in my location, is, first, white clover; then second best, basswood timber. But there is nothing here that equals the white clover honey. It is important to get as much of that as possible in its very best condition. In order to do that we must have every thing ready that may be wanted to work with, that no time be lost by the bees. We want plenty of good clean combs for the bees to store their honey in. To get these we must see to it that the dark honey that is in the combs, left from their winter stores, and what is gathered in the spring time from dandelions and fruit blossoms, etc., which is dark, is all emptied out of the combs, so as not to be mixed with our nice white clover honey, just as soon as our bees commence on the white clover, and are making a living. Then we commence

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to extract, and whirl out all the honey we can get from every comb in the hive that has the least bit of dark honey in it. A very little of this dark honey will stain or darken a whole barrel of white honey. The cleaner we get out this first extracting, the whiter the second extracting will be. The first extracting with us is very dark, and is usually sold at the cracker factories for about two cents less on a pound than the best honey.

If the weather is not too wet, one week's time after we extracted the first time we can extract again. But if we are having wet weather, it is better to wait two or three days longer, for the honey to get thick and ripe. But unless the weather is very wet, we get good thick honey when we extract once in a week. Do the best we can when we take out the first extracting, there will be enough of the dark honey left in the combs to darken the second extracting considerably.

The second extracting usually sells for about one cent less on a pound than the best honey. In good average seasons we extract four or five times, depending somewhat on the weather as to moisture. If the weather is dry, and yet moist enough to favor a good honey flow, the honey will be first-rate if taken out as often as once a week. In wet weather it is best to wait ten or twelve days, or long enough for the honey to get thick and ripe. If two-thirds of the honey is capped over, the honey is all right; don't wait any longer.

Our third extracting is the best quality of any that we get. It is strictly pure white clover, and commands the highest price. The fourth extracting is as good as the third, if we get it all out before the basswood blossoms open; still I can usually sell mixed clover and basswood at the same price as clear clover. The basswood usually begins to blossom before we get all of the fourth extracting out, so that the fifth extracting with us is pure basswood honey. We leave enough of the basswood honey in the hives for the bees to winter on, as, after the basswood we don't have honey producing flowers to more than give the bees their daily living.

We have some customers who like the flavor of basswood honey the best of any. With a big crop of honey it is important to have each grade of honey kept strictly labelled; and for convenience, each grade in the storeroom in divisions by themselves. The way we do it is this: We take barrels with us to the different apiaries, enough to hold the day's honey that we expect to get. We can estimate very closely how much storage room we want to hold the day's yield. We extract one whole apiary in a day. In good seasons we get 2,000 lbs. and upward in a day, in the best part of the season. We haul home every night all the honey we have taken through the day, and put it in our storehouse. Then we tack on the head of each barrel a card, on which we mark the date, year, month and day; the number of the extracting; then "thick," "thin," or "medium," as the case may be. All barrels of thin honey, if we have any, are set off in a lot by themselves, the thick by itself; the same with the medium in thickness. Then we have our honey in good shape to sell. We know just what there is in every barrel. Our labels give us the the exact quality of the honey. For convenience we have them divided off together, as regards thickness. If we have any fall feeding to do we feed the thinnest honey (usually the basswood). Be sure to work off all the thinnest honey before the heat of another summer arrives, as thin honey would be likely to sour if kept over until next summer. If we happen to have any thin honey it will sell better when it is fresh. If we keep any over the next season, let it be of the best and thickest honey. Good thick honey will keep for years. I for one have learned a good lesson this poor season. Last year we had 42,000 pounds of the best of honey; and as we had good seasons for four or five years before, the honey markets were loaded. I went in with the rest and sold, for what I could get, all of that crop, and what we had on hand of other crops, all at low prices. The same honey kept until now would have sold quick for nearly double the price we got for it. If we

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have good thick honey it will keep in a dry place for years. We should not crowd the market, if we are so fortunate as to have a big crop of good thick honey.

Platteville, Wis.

From Gleanings.

THE DRONE.

Our Poor Slandered Drone Asks For His Day in Court.

L. L. LANGSTROTH.

Virgil, who was a great poet, but not enough of a practical bee-keeper to know a laying from a virgin queen, was the first writer of much note to have his fling at me. To him I was only an idle knave, born to consume the fruits of others' labors, and deserving no better fate than death, by ignominious expulsion from the industrious commonwealth. Ever since he so grossly libelled me, to compare one to a drone is the most orthodox form of denunciation for laziness, gluttony, and what has been called "general cussedness."

Now, I am proud to say to this court that I can disprove every charge brought against me, by simply proving that, to the best of my ability, I fulfil the express object for which I was born. Surely no creature can do any better than this, and excuse me for thinking that few men do as well.

CHARGED WITH LAZINESS.

If any of my enemies had authority to call the roll of my demerits, he would surely begin by accusing me of being too *lazy* to gather any honey. But an expert in points of this kind could remind him, that, if he examines my proboscis, he will see that it is much too short for sipping nectar from the opening flowers.

MAKES NO WAX.

I am free to admit, that I make no wax; but even Cheshire himself, whose microscopes have fairly turned me inside out, will tell you that I have not a single wax-secreting gland, and am also without those plastic, trowel-like jaws which enable the worker-bee to mould the wax into such delicate combs.

GATHERS NO POLLEN.

Now, do not insinuate that I might at least employ some of my leisure time in gathering pollen! Can you not see that my thighs have no basket-like grooves in which it could be packed, and are quite destitute of the bristles by which the workers hold the pollen into place?

ACCUSED OF BEING A LAZY COWARD.

No doubt you have often denounced me as a big, hulking coward that leaves to the woman the whole defense of the state. Are you not aware that I have nothing to fit me for acting on the offensive? Would that I had one proportioned to my bulk! if only that I might make proof of it upon all who berate me for not accomplishing impossibilities!

I am not at all ashamed to admit that I spend the most of my time, not given to eating, either in sleeping or what you are pleased to call listless moping about the hive. Has it never occurred to you that if I should try to assume the restless activity of the worker bee, I could be nothing better than a meddlesome busy-body, perpetually interfering with the necessary business routine? I guess the silly meddler who would put me up to such nonsense ought more than once to have had a dish-cloth pinned to his rear, to teach him not to bother the women in their work!

MISUNDERSTOOD.

I am sorry to number Shakespeare among those who have misconceived me, by calling me "the lazy, yawning drone;" but as one of my maligners has likened me to Falstaff, I may be allowed to quote, in my own defense, what this braggart, when accused of cowardice, says of himself to the prince: "Was it for me to kill the heir-apparent? Why, thou knowest I am as valient as Hercules, but beware instinct; the lion will not touch the true prince. Instinct is a great matter; I was a coward on instinct. I shall think the better of myself and thee during my life. I for a valiant lion, and thou for a true prince." I lie not, like the false knight, when I say that what you

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call my laziness is a matter of pure instinct.

With all your boasted reason, you seem to have overlooked the doctrine of conservation of forces. You upbraid me with consuming so much of the precious honey, to the gathering of which I contribute nothing! Well! if I made a single uncalled for motion, would not that necessitate an extra consumption of food? What better can I do, then, than to keep as quiet as possible? There is nothing either inside or outside of the hive which calls for any other line of conduct, until the young queens are on the wing; and as they do not sally forth until long after noon, why should I go abroad any earlier? I can assure you, that, if bridal excursions were in order as many hours in the day as the flowers secrete honey, no worker would ever be earlier to rise, or later to go to bed than myself.

MISREPRESENTED.

I an idle, lazy, listless lounger, forsooth! Does any one wish to witness the most perfect embodiment of indefatigable activity? Let him then look at me, when, at the proper time, with an eager, impetuous rush, and a manly resonant voice, I sally from the hive! See with what amazing speed I urge what our old friend Samuel Wagner called my "*circumvoluting*" flights! For aught you know. I may cover greater distances in describing these vast circles than the busiest worker in the longest summer day. There is great need, then, that I should be abundantly provisioned for such exhausting excursions; and it is only a law of nature that, on my return from them, all that I carried out with me should be found to have been used up. If you taunt me either for the full or the empty stomach, I merely ask you if you have never heard of honey-moon trips among your own people, which began with extra full purses, to end only with uncomfortably light ones.

SAVAGE DELIGHT OVER MY DEATH.

To cap the climax of your abuse what savage delight you take in seeing the worker drive me from my pleasant home! and how glibly you can moralize over what you call a righteous judgment upon a life spent in gluttony and inglorious ease! Just as if you did not know that the whole economy of the bee-hive is founded on the strictest principles of utilitarianism! Is not a worker-bee, when disabled by any accident, remorselessly dragged out to die, because it can no longer contribute to the general good? Even so exalted a personage as the queen-mother herself, as soon as it is plain that her fertility is too much impaired, has a writ of *supersedeas* served upon her, in favor of one of her own daughters.

Knowing well the law under which I was born, I urge nothing against being put to death when Shakespeare's "pale executioners" deem the day of my prospective usefulness to be over. Truly, the sword of Damocles is suspended over my head; and from the hour of my birth till that of my death it may fall at any moment. Many bitters are thus mingled with my sweets.

I have time to mention only one more. While I know that most of the young queens come safely back from their wedding excursions, I can not help sometimes foreboding the worst, when I see that no drone ever returns to tell us of his experience.

APPRECIATED BY BONNER.

I will close my defense, by reminding you how the good father of the great Scotch bee-keeper, Bonner, showed his appreciation of our persecuted race. It was his custom to watch every year for the first flying drone. Its cheerful hum so filled him with delight, as the happy harbinger of approaching swarms, with their generous harvests of lucious sweets, that he called an instant halt on the work of his busy household, and devoted the rest of the day to holiday feasting. The patron of the drones ought for ever to bear the honored name of "Saint Bonner."

THE DECISION OF THE COURT.

This court having heard the defence of Sir Drone, pronounces him to be innocent of each and every one of the misdeeds alleged against him. It only regrets that it can not inflict adequate

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punishment upon his slanderers. Alas, my poor fellow! the lies against which you protest have had so many centuries the start of your true story that you may well despair of ever overtaking them in your short lifetime.

MORALS FROM THE DRONE'S PLEA.

From the plea of the drone, many good morals might easily be drawn; such as, "Do not give even a dog a bad name, unless you are sure he deserves it." The moral which I think will be most interesting to bee-keepers is this: "Beware of publishing false statements to the injury of any one's business, and then try to laugh them off as harmless 'scientific pleasantries.'"

THE DRONE'S PLEA AND THE WILEY LIE.

This plea of the drone might suggest more than one good moral; but I will confine myself to what I will call the "Professor Wiley Moral."

It is only too well-known to most of our large honey producers, that, some years ago, Prof. H. W. Wiley, an entomologist at present in the service of the Government at Washington, published substantially this statement, namely, that honey combs are manufactured by human skill, and, after being filled with glucose, and neatly sealed over, are sold as genuine bees' honey, when the bees have had nothing to do with a single step in the whole process. This absolute misstatement having got a good start, has widely, at home and abroad, prejudiced the public against the purest honey, even when offered for sale in the most beautiful combs. Although refuted again and again, it is constantly reappearing in print, and seems to have a vitality almost as great as when it first started out on its hurtful career. Prof. Wiley, when called to account for fabricating such a story, excused himself by saying, that he meant it only as a "*scientific pleasantry*!" His worst enemies could wish him no harder task than, over his own signature, to try to stop the pestiferous march of (to call it by no harsher name) his incautious utterance.

As he is guilty, that shooteth arrows and lances unto death, so is the man that hateth his friend deceitfully, and when he is taken, saith, I did it in jest.—PROV. 26: 18, 19.

The above is the Douay, or Catholic version. I prefer this version of these verses to our common version. Could there be a stronger condemnation of Wiley's "scientific pleasantry?"

Dayton, O., March 8, '88.

From the British Bee Journal.

Adulteration of Honey.

We have long been aware that American dealers adulterated honey, but we must confess that we were not prepared for the revelation made in the BEE-KEEPERS' MAGAZINE for April. It appears that the Dairy Commissioner of New Jersey has had honey purchased in different towns of the State, and has had it analyzed. Out of *thirty-one* samples of honey put up by packing houses, only six were found to be pure! We reprint the list furnished by our contemporary, and commend it to the careful study of every bee keeper. We have never suspected bee-keepers to be guilty of adulteration, and we are glad to find, as of course we expected to do, that every sample supplied by bee-keepers was pure. We have very good reasons for complaint against American honey dealers, for did they not flood our British markets with adulterated stuff, to the great detriment of American as well as our own bee-keepers? It will be still within the recollection of many of our readers that in 1879 Messrs. Thurber & Co. imported into England a large quantity of honey. They exhibited it at Kilburn, and certainly up to that time no single exhibit of such magnitude, or presented in so saleable a form, had been seen in London. W. Hoge, who was their honey man at that time, said there were ten tons, but although there was not even half this quantity, the exhibit was a fine one, and gave a good idea of the capabilities of America in the production of honey. The market for American honey was now open, and prospects were most brilliant; but it was not long before Thurbers, through Hoge, introduced adulterated honey, and, notwithstanding the attractive labels, the British public soon learned to

look with suspicion on any honey bearing the name of Thurber. The British Bee-Keepers' Association also did good service to bee-keepers in having honey supplied by dealers analyzed and publishing the results.

Hoge left Thurber's and started business on his own account with an office in the City, a honey refinery (?) at Islington, and all the paraphernalia necessary for the sophistication of honey. He advertised extensively, and his honey was to be seen in many shop windows; and had he dealt honestly in pure honey, probably his career would not have been such a short one. Adulteration, however, proved for him too great a temptation, and when analyzed of all the samples of honey emanating from Hoge's establishment under various names, there was not one pure. We do not wish to enter into details of how he imposed on the credulity of the public by assuming what he was not, and why he and his fraudulent exhibits were turned out of the Health Exhibition; nor how he imposed on his countrymen a story of which there was not a word of truth, pretending that he had got his honey on the Queen's table, and how this story, with various additions and variations, made the tour of American papers. Knavery may serve a turn, but honesty is best in the long run. Probably Hoge has found this out now in his wanderings no one knows where in America, and his firm have lately paid a first and final dividend, a most remarkable one, of .65 of a penny, or *2l.* 14*s.* *2d.* in 1000*l.* !

We mention these facts merely to show the harm that adulteration has done and the reason that American honey is now a drug in the British market. Bee-keepers, both here and in America, have reason to cry out against these adulterating practices of dealers and should decline to supply them with honey. We have before us a letter written to us a few years ago by Hoge & Co., asking us to supply them with our honey, and they said they were prepared to give us our own price. Suspecting the purpose for which it was intended we declined to sell to them at any price. We hope others will do the same, and thus induce shop keepers to purchase direct from the bee-keeper, instead of through a dealer. The list is rather an instructive one, and is worth a careful study, as it makes clear two very important points. First, it will be noted that in most cases the adulterated honey is labelled in such a way as to make one suppose it was pure and something extra good. For instance, No. 57, "Choice comb honey," No. 62, "White clover honey from the apiaries of Central New York, warranted pure," No. 78 is also "warranted pure;" and one, No. 90, has actually the audacity to state, "Pure orange-blossom honey; is absolutely pure, no glucose," and yet this is found to be adulterated. The gaudy lable and the warranty therefor of an American honey dealer appear to us in the vast majority of cases very much like a badge of its impurity. The second lesson is that honey in the comb is also adulterated. By referring to Nos. 57, 58 and 60, it will be seen that these are all comb honey, yet they are adulterated.

Where does this adulterated comb honey come from? Not from respectable bee-keepers, of that we are quite sure. We have the authority of Mr. Shippen Wallace, Ph. D., for the fact that this comb honey is adulterated, and it is therefore produced. How? That is the secret. Shall we be also told that this is a *Wiley lie*, or is there any other explanation than that this adulterated comb honey is manufactured on some of the adulterating farms by feeding bees? We are glad to notice that not a single sample of honey purchased of bee-keepers was adulterated. Further comment is unnecessary.

The BEE-KEEPERS' MAGAZINE has done bee-keepers good service in exposing this adulteration, and, in a vigorous article condemning the practice, winds up with the following remarks, which we commend to our readers:—"So long as Messrs. F. G. Sthromeyer & Co. continue adulterating honey, they should be shunned by all bee-keepers who have any respect for themselves or their pocket books. The same

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is to be said of Messrs. M'Caul and Hildreth, and the rest of the gang of adulterators. They should be made to feel that they are outraging the rights of the bee-keepers of this country, and for the few paltry dollars they may make in this nefarious trade they are ruining hundreds of bee-keepers, and rendering hundreds of others poor, with their families perhaps, in want."

Mr. A. Todd, whose kindness to us when at Philadelphia we shall never forget, cried out, and truly, against this practice, and said the competition was so great that there was very little chance of making a living by dealing only in pure honey, but that rather than adulterate he would give up the business. We are glad to find that he has been true to his word. This is what the BEE-KEEPERS' MAGAZINE says: "It is a lasting monument to our friend, the late Arthur Todd, that, amid all the adulterating dealers about him, he stood aloof, and never soiled his hands with the dirty business, and that when he preached, 'Deal in pure honey,' he also practiced it."

From the American Bee Journal.

Protection is Wanted Against the Adulteration of Honey.

DR. WM. LEERS.

Mr. A. I. Root referred (according to the report of the New York Convention, on page 106) to the statement of the State Chemist of Ohio, that it was difficult "to tell when honey is adulterated." This deserves an explanation.

I think Mr. Root, as well as the State Chemist, are mistaken about the signification of the term "adulterated" in connection with honey, and trade in general, confounding "adulterated" with *impurity!* Nearly all drugs as made in the factories, and all natural products sold in the stores, contain impurities; but if such impurities are not mixed for a fraudulent purpose, no notice is taken of it.

For an example: The immense quantities of acids employed in the arts are all more or less *impure*, but no one would call them *adulterated!* Commercial sulphate of iron (green vitriol), as sold in the stores, may contain ten per cent. of impurities (ordinarily more), is styled *impure*. It is made so by the manufacturing process, and purifying it so as to render it "chemically pure," would be too costly, and would not improve it for the ordinary use in arts. On the contrary, if baking soda contains five per cent. of clay it is properly called *adulterated*—the clay is mixed to fraudulently deceive the one who may be using it.

This applied to the honey trade, would not make it an "adulterated" article, if bees should gather glucose, molasses, or any other sweet occasionally found (as they sometimes do in times of starvation, or in the spring if empty barrels are within their reach); or if strained honey is not as pure as extracted; this would simply be an impurity! If such, or any other contamination should happen, in a small degree, it may be somewhat difficult for a non-chemist to detect it, but to an experienced chemist it would not be difficult!

But such cases do not disturb bee-keepers. Their complaints are made against the manufacturing of trash (glucose with or without a small amount of cheap honey, and other drugs, under the name of "honey") at prices with which the producers of genuine honey cannot compete! This is where the State Chemist is wrong, or Mr. Root mistaken.

The main question for the manufacturers is: Does it pay? Now the addition of a small amount of glucose, say five, or even ten per cent. in reality would not pay, and consequently, honey with so insignificant an adulteration, will not come into the market. It must be mixed in such proportion that the detection even for a less experienced man is easy. Honey contaminated with glucose, or other impurities, in so small proportion as to make the detection difficult, would not be called adulterated, "but impure," or of a poor quality!

That, as Mr. Root says, bees "gather every variety of honey," is correct; but that they gather a variety, which, by the

chemist, may be declared "adulterated," will seldom if ever happen. But suppose they did, the producer would be in a similar position to a farmer who had (without his fault) in his rye or wheat so much mother-corn, or in his clover seed so much dodder-seed, that he could not find a buyer; or of a merchant, who is condemned by public authority for selling merchandise, which (without his fault) had become unwholesome.

I will say to Mr. Aspinwall, that glucose in honey of a far smaller percentage than five per cent. can, by a non-chemist, be detected, not only with the polariscope, but also by easier methods. And commercial glucose also can easily be detected at all times. In other countries (England, Germany, Switzerland, etc.) it is not difficult, why should it be impossible in this? A law against adulteration of honey does not exist in Illinois, as far as noxious substances are concerned.

TIME FOR ACTION.

In the past year, when honey was so cheap, was the proper moment for bee-keepers to have taken steps to protect their business. The universal adulteration of all human commodities had alarmed the public, the low price of honey stopped its adulteration, because it did not pay, and so strong efforts of the adulterators was not probable. The passing a law similar to that of New Jersey by the Legislature (or even by Congress) would not have found insurmountable obstacles—the demands of the public going in such direction, and no great interests opposing. For the law against the adulteration of milk and of butter, the chances were far less favorable.

Mr. Dadant, to whom I proposed to begin an action, said that the time was not favorable; State's rights were an obstacle, and adulteration had nearly entirely ceased. But State's rights will not soon be abrogated, and as soon as the price of honey has improved a little adulteration will doubtless flourish again.

The prohibition of adulterated honey is a vital question for bee-keepers, and connected businesses. Important investments are made in bee-keeping, factories of apiarian supplies, periodicals, etc. What will be their fate if one bee-keeper after another abandons this unpaying business? Then comb foundation mills may be converted into wash-wringers, and bee-hives into hen-coops, while people may eat unwholesome trash, and pure honey dries up in the fields!

Other industries work for protection, and have succeeded. Why are bee-keepers so easy? We do not want heavy duties, patents, appropriations for premiums or other support—we want protection against frauds upon the public! We need no "trusts" or "corners." Manufacturers may sell their trash as cheap or as dear as they can—all that we demand is that it be sold to the public for what it is! The protection of the public against fraud, will also be our protection.

Sigel, Ills.

[We would say that we should be pleased to know of an easier and as certain a way of detecting less than five per cent. of glucose than with the polariscope.—ED.]

From the American Bee Journal.

INCREASE.

Methods of Obtaining Comb and Extracting Honey, etc.

Read at the Nebraska State Convention.

BY J. M. YOUNG.

Knowing the interest taken in the advancement of bee-culture, I improve this opportunity of making a short report of my labors in that direction. The honey crop of last season was considerably below the average in this part of the State, and in certain parts an almost total failure. The fall crop was very light, owing to the continued drouth during the summer months.

Fruit-bloom and the early blossoms of white clover put the bees in good condition, and kept them so until swarming; but they secured only enough nectar from these sources to build up rapidly, and not enough to store any surplus. White clover proved

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nearly, if not quite, a failure in this part of the country, so far as I know.

About June 20, there was a fine flow of honey from the basswood blossoms, which grow abundantly on the banks of the Missouri river, and all along our water courses. This flow lasted two or three weeks, when it ceased, leaving the bees with well-filled hives and a fair surplus stored in the sections. The balance of the season furnished the bees only enough to keep them in good condition, and keep brood-rearing under good headway.

The present condition of bees in general is very good, with the exception of late swarms, which will starve long before spring. My bees, which are being wintered on the summer stands, began the winter with all the conditions favorable, the colonies being strong in numbers, and having an abundance of well-ripened honey.

During thirteen years' experience in apiculture, I have always practiced outdoor wintering. By actual test and experience in this matter, I long ago arrived at the conclusion that bees wintered on the summer stands successfully, must have protection against the extremes of temperature of the cold winters of Nebraska. The bees wintered with proper packing, invariably come through the winter stronger in numbers, build up more quickly in the spring with less dwindling and are in better condition to receive the harvest than those in single walled hives standing side by side.

The inventory of my apiary at this date (Dec. 31) shows that seventy-three colonies out of ninety-six are packed in chaff on the summer stands, and if my experience is anything like it has been heretofore, I do not expect to meet with any unusual losses in wintering.

MAKING INCREASE BY DIVISION.

While dividing colonies for increase is preferred throughout the country by a large majority of bee-keepers, I practice and prefer in my own apiary, "natural swarming," from the fact that apiculture is my sole occupation for a livelihood, and I work the business for all that is in it.

If the bee-keeper has plenty of time and extra combs, with which to supply his divided colonies, he will without a doubt succeed with this method. I will say this in behalf of dividing colonies, from the fact that I do not wish to be understood to say that bee-keeping cannot be made a success financially without it, viz :

If increase is the bee-keeper's object, and he has plenty of comb foundation already drawn out, and plenty of money in his pocket, by all means use the dividing-method of increase. On the other hand, my experience has enabled me to arrive at the conclusion that *natural swarming* pays best, if dollars and cents is the object to be sought.

The question might be asked, how do you control swarming? I do not always do it, but then, to a certain extent, I do. Just as soon as the bees begin to show symptoms of swarming, I put on the sections, and keep the bees supplied with plenty of room, never allowing them to be idle if there is honey in the fields. In a few days after the first swarm issues, I open the hive from whence the swarm came, and remove all queen cells but one, if there seems to be no newly-hatched queen present.

Some apiarists may claim that bees will swarm too much, but my experiments in that direction have proven to the contrary. From seventy-six colonies, spring count, I obtained only about thirty swarms altogether, for the season of 1887; and in summing up all my reports from year to year, I cannot find one instance whatever, of doubling my number of colonies by natural swarming.

Dividing colonies is a safe way to increase, and can be carried to almost any extent; and while I have said so much against it, I could not well dispense with this new improvement in bee-culture; for it is by this means that all my nuclei colonies are formed, and queens reared.

COMB AND EXTRACTED HONEY.

Now a few words as to my method of obtaining comb and extracted honey.

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The apiary is worked for both comb and extracted honey, from the fact that there is to be found in any apiary a number of colonies that do not feel disposed to work in surplus sections; whenever colonies of this kind are found, they are supplied with an extra set of combs, and by this means they can be induced to store a fair surplus of honey to be extracted. In this way a portion of my apiary is "rigged up" with two sets of combs, for extracting purposes. When honey begins to come in fast, these combs are placed in the extractor about once a week (or just as often as necessary), and the honey taken out. I seldom disturb the lower story in extracting.

The rest of the apiary, being composed of all strong colonies, is supplied with sections whenever necessary. When one case is partly full, it is raised and an empty one placed under it. My favorite section for obtaining comb honey is the 4¼x4¼ inches. I use two widths, namely, the 1⅞-inch and the 2-inch. Which width is the best, I am not prepared to say.

My market demands a section that holds a pound of honey; sometimes I get this pound in the 1⅞-inch section, and oftimes in the 2-inch section. My judgment, based upon experience is, that a section which will hold as nearly as practicable one pound of honey, is what the trade and market demand.

In conclusion I will state that the season's work for 1887, summed up in a nut-shell, is not an encouraging report by any means. After uniting a few late swarms in October, I began the winter with ninety-six colonies, having had seventy-six colonies with which to commence the season's work. My sales of comb and extracted honey amounted to upwards of 1,700 pounds, about 1,500 pounds of which was produced during the last summer. The comb honey was disposed of at a good price. Extracted honey has had only a fair sale, but I am glad to say that the demand is increasing.

Rock Bluffs, Neb.

In winter we may obtain the theory, but now the practical, in bee-keeping.

From the Boston Bee Journal.

The Honey Bee.—1888.

Bees, of all insects, are most dreaded and at the same time the most sought after and admired. Their desirable honey gathering qualities would be of no value without a sting to protect their stores. They gather the most delicious sweets from the most beautiful objects in nature, and charm us by their industry, variety and beauty of their instincts in gathering their honey, bee-bread and water, closing cracks in their hives, elaborating wax and constructing combs, developing their young queens, drones and workers, and guarding themselves against robbers, worms and other enemies, and their mode of housing themselves for protection in the winter. Bees are not natives of America, but were imported by the early settlers who brought them to the Eastern States, whence they migrated westward all over the country except that they have not been able to pass the Rocky Mountains, but have been shipped to California and Oregon *within the past twelve years.*—[*!!!* ED.]

The Indians esteem them the "white man's fly," and expect as they approach that they will have to fall back to give the white man room. The bee moth or worm seems to have also been introduced in the East, and spread until, we suppose, they are now everywhere infesting hives!

Frightening bees with carbolic acid vapor is more effective if properly applied than smoke; in the case of straw skeps, it is the same. I have frequently advised bee-keepers not to pump the fumes into the hives; but many do not seem satisfied unless they can "go at" their smokers and fumigators as though they were pumpers on a fire engine when the word is passed "Down with her." You simply want to breathe, if I may use the expression, with the fumigator at about the same rate as you breathe yourself, shifting it about to drive the bees back. The air passed out of the fumigator must be thoroughly impregnated with carbolic acid vapor, and must pass over the sponge at least

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twice to be thoroughly effective. I have driven hundreds on straw skeps with the fumigator both in private and in the bee tent, and have not used smoke in my apiary for two seasons.

Foul Brood Not the Fault of the Queen—A Successful Cure.

"Foul Brood," in November number, page 338, I see the fault is laid to the queens. This is not so. I have had to deal with foul brood for four years, and know better. I tried to clean it at first on the combs with the Cheshire plan and failed. But I use carbolic acid to clean the bees, and burned out the box with coal oil and put them back in it, boiled up the honey and wax, and fed the honey back to any bees that needed it. If it was the fault of the queen I would not have been in the business to-day. So don't say burn them. I have bought them knowing I could cure them. I bought a stand from Joe Wightman, deputy marshal of this city, my near neighbor, for twenty cedar posts, and last year I gave him two dollars for another. I brought it home and cleaned it, when I had seventy-five stands in the yard, and I now have four colonies of bees from them. I don't object to foul brood only I lose the drawing of combs.

F. M. H.

[The plan you adopted is a good one and superior to the Cheshire (?) method. It should be remembered that in a foul brood colony the queen is not always diseased.—ED.]

Questions Answered.

Mr. John W. Arthur of St. Joseph, Mo., asks if there is any danger of destroying bees by spraying an orchard in which the apiary is, with London Purple. Inasmuch as the spraying should not be done until the blossoms have fallen, and consequently after the bees have ceased working upon them, we think that no danger need be apprehended. We hope Mr. A. will give spraying a thorough trial and report results next fall to the *Prairie Farmer*.

Scientific * Department.

From Gleanings.

MR. THOMAS WILLIAM COWAN.

A Few Words in Regard to his Recent Visit.

It seems to me no more than fitting that we should take a little space to speak of one of the greatest of living bee-keepers. I do not mean by this that Mr. Cowan has the largest apiary in the world, for, in fact, I do not know how many colonies of bees he does keep. Furthermore, I do not know that he has ever made any money by following the pursuit of bee culture. It sounds a little strange, does it not, friends, to speak of it in this way? Well, the fact is, friend Cowan gave me a new glimpse of life; that is, he gave me the glimpse of the life of a human being who is not working as we Americans do, too many of us, simply to pile up dollars. I presume likely he is wealthy; but he did not tell how much he is worth, and I did not feel like asking him. In fact, since I have been thinking of it, in our country we place altogether too much stress on the amount of property a man has laid up. In my Sunday-school class of growing boys a short time ago, the subject turned on wealth; and almost all of the boys directly or indirectly declared that money is the main thing. In trying to give them a glimpse of something better, I asked them how much they knew of Vanderbilt. They had heard his name mentioned, but not one of them could tell me much about him. I don't think that one of them knew whether Mr. Vanderbilt was dead or alive. They only knew that he had had the credit of being worth millions. Several years ago, while away from home, a locomotive and train of cars stopped at the station where I was standing. There was something so unusual about it that I inquired of a bystander what it all meant. He said it was Vanderbilt's traveling escort. He owned the cars and he owned the locomotive. We did not get a glimpse of the millionaire, but we did see his servants and waiting-men. *They* were fixed up enough to satisfy us, without

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getting a sight of the great man himself. Perhaps you wonder if a great crowd gathered. I don't believe half a dozen people crossed the street; and although the train was evidently intended to impress the world on whatever road it ran, it did not seem to have succeeded at all. Nobody cared particularly about Vanderbilt; and the sight of this spectacle, indicating his princely wealth, gave me but a feeling of pain. I remember a gathering at a railroad station a few years after this. The gathering was to get a glimpse of Garfield. People came for miles around, and a great crowd surrounded the end of the car where he spoke to them during the brief interval the train stopped. The people flocked to see him, and to take him by the hand, as many as could, because he had risen from obscurity—yes, from being a canal-boy, by his own efforts and industry. Garfield was never worth very much money, I believe; but he won the love and esteem and respect of almost the whole world, because his life was given for the good of the people.

Well, in that two-days' visit with brother Cowan I did not hear anything said about great chances of making money, nor any discussions whether this, that, or the other would *pay*. It is sometimes said that riches tend to discourage energy and industry. It has not been so in this case. Friend Cowan must have been all his life a most energetic and determined worker. I don't know how many people he employs, but I feel sure he might employ a great many if he chose. But the work I speak of is the work of his own hand and his own brain. When I met him at the train I offered to carry a part of his luggage, and I took hold of a nice square box that I thought would be just about what I should like to carry. I very soon, however, passed it over to Ernest. Had the box been filled with iron wedges, I should not have been more astonished. Pretty soon it transpired that this was his microscope. You know, friends, I have for many years worked in metals. I know pretty nearly how many years of patient, earnest toil it takes to make a fine mechanic, and therefore I was prepared to be surprised when Mrs. Cowan remarked that the microscope was the work of his own hands. The more I examined the instrument, the more astonished I became. People often say, in looking at home-made work like this, that it it wonderfully well done for *hand-work*; but this piece of machinery was the best work I *ever* saw in my life, of any kind. I mentally figured up the amount of machinery required for the different operations needed, and a little conversation satisfied me that he was expert in the use of the lathe and other mechanical tools. Those who use microscopes have doubtless discovered how necessary it is that every part of the machine should move freely, but at the same time never should move so easily as to move of its own accord. It never occured to me, until I saw friend Cowan's instrument, that a device could be made to allow these heavy parts not only to move just right, but to keep moving just right. Not only is every portion of the instrument adjustable in every direction, but the friction with which the parts move is also adjustable; and at any time any part can be made to work a little tighter or a little looser, by a slight turning of minute screws. A great many times I have felt impatient because of the length of time it takes to accomplish anything with the microscope, or to exhibit it to friends. Now, although this instrument is remarkably strong and heavy, our friend handles it with greater rapidity and accuracy than I ever saw anything in the line of optical instruments handled before.

Mr. Cowan was not only the most thoroughly versed man I have ever met or heard of in every thing pertaining to bee culture, but he was equally at home in the department of mechanics. At different periods of his life he has worked at or worked out most of the well-known mechanical problems. I was pleased to hear him him tell us about working on perpetual motion, to be run by magnetism. He has made an electric clock, and one that performed well, too, which is more than can be said of the one that I made some years ago.

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He knew what is possible in mechanics as well as that which is impossible. Now, do you think me vain when I say it is only once in a great while that I meet those who are capable of conversing in regard to the possibilities and impossibilities in the line of perpetual motion. If there are any among our readers who are now thinking of working on this foolish fancy, let me say to them, you can no more create a perpetual motion by cog-wheels and magnets than you can cheat the great Creator of the universe. You can make wind and water turn wheels, etc., and you can make natural gas run steam-engines, which ought to satisfy anybody; but we can not run any machine without motive power. People who talk about the Keely motor-power which made such a stir a few years ago, need a little rebuking in this line. At one time almost all the papers were against the *Scientific American* because that journal would not admit the claims made for the Keely motor. The *Scientific American* was at home; the matter came right on their own ground, and its editors knew whereof they spoke and wrote. The papers that published the accounts of its success ought to have known better.

Well, after talking a little on perpetual motion, friend C. said, with a bright start, "Oh! I have got a perpetual motion among the things I brought to show you."

He said it in an indifferent way that implied he did not expect it to run saw-mills, thrashing-machines, etc.; but I was quite anxious to see it, nevertheless. Now, what do you suppose it was? It was in a microscope-slide that was prepared from an exceedingly thin bit of meteoric stone that fell to our earth in 1879, if I am correct. Pieces of the stone are ground so thin as to be transparent. This transparent film of meteoric stone is then subjected to the enormous magnifying power of something like 5,000 diameters. I presume that earnest seekers for what God has given us to hunt out, placed this stone under the microscope to see if they could tell about where it came from, or what there was curious in regard to it. In this thin film of rock they found cavities. These cavities are full of liquid. Now, mind you, the stone, when it fell to the earth, was red-hot. How can the liquid be found there now? No one can tell. Well, in this liquid is a little bubble resembling an air-bubble in microscopic work; and this minute bubble, almost as small as anything in the shape of insect-life can exist, is continually bounding and rebounding from one side of the cavity to the other. It seems as if it were almost alive, for it is never still. Now, an ordinary observer who has not studied the problem of perpetual motion, probably would not see anything curious or wonderful about it; but it was to me at once one of the greatest curiosities of my life. Why should this bubble keep moving? It does not take any power to move it; in fact, the breath that stirs the wing of an insect would be a hurricane, almost, compared with the small amount of force needed to keep this tiny speck bumping around. The question is what force keeps up this motion? It is at present one of the curiosities of the scientific world, because there is absolutely no force known to man that will account for the motions of this uneasy little atom. Does it run all the time? Friend C. said it had always been running since it had belonged to him, and that he had watched it for hours together, to see if he could discover anything that might give any possible clew to the propelling power. There is only a limited number of these microscopic curiosities in the world, aud they are sold at a very high price.

Friend Cowan took a stroll in our grounds. He named the plants of America—that is, giving them their botanical name—about as easily as you would name the plants in your own garden. I presume many of the plants he had never seen before at all. We occasionally meet men who are deeply versed in regard to botany, entomology, astronomy, mechanics, or the fine arts; but it is very seldom indeed that we meet an individual who is sharp and keen on *all* these things. Friend Cowan seems to have cared to

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explore all Nature's labyrinths and resources; and, mind you, these explorations have not been made principally to satisfy his own notions: the end and aim of his work is for the benefit of his fellow-men. In our issue for May 1, p. 366, we made mention of a couple of pamphlets. One of these tells how to make an extractor and a bellows smoker; the other is in regard to securing extracted and comb honey, and the prevention of swarming.

Some one asked whether he should call friend C. "doctor" or "professor." He replied quietly, "Neither, if you please." But I see on the Guide-Book Pamplets the following letters: F. G. S., which means, I presume, Fellow of Geological Society; and F. R. M. S., which I also presume stands for Fellow of the Royal Microscopic Society. And last, but not least, he is editor of the *British Bee Journal;* and it seems to me it is not only the people of England who are to be congratulated upon their having such an able man, but I feel sure that the whole world will be better for his labors and researches.

Friend Cowan is a member of the Church of England; and it was not until I hunted up some of his old letters that I discovered what a very earnest, pure-minded, and high-toned Christian he is. Since I have seen the man, and talked with him face to face, the letters he has written to me in years past have a new meaning; and I presume, dear friends, such might be the case with many more, if it were possible for me to meet you all face to face; and while this is not possible in this world, who knows of the possibilities of that life over and beyond this? For we are sure that "eye hath not seen nor ear heard, neither have entered into the heart of man, the things that God hath prepared for those who love him."

Now, dear friends, do not think that I mean to forget his good wife, who has been all these years by his side, a faithful student and patient helper. What friend Cowan lacks in the way of volubility, his wife makes up by her good-natured vivacity. Mrs. Root was greatly worried, as a matter of course, at the thought of entertaining such distinguished guests; but Mrs. C.'s good-natured English ways very soon won a place in Mrs. Root's heart. In addressing her husband, Mrs. Cowan says, "Tom, dear," in a familiar way that was worth ever so much to me. For several days after they went away, my wife would have it over. This single little expression contributed greatly toward making us feel at home and acquainted. May God bless our two English friends wherever they go; and I presume that one secret of their vast fund of information is the fact that they have both traveled much.

[In glancing over *Gleanings*, we came upon the foregoing remarks about Mr. Cowan. They are so exactly in accord with our own impressions of Mr. and Mrs. Cowan's visit, that we gladly insert them here. There is not the least doubt but that Mr. Cowan is the greatest living bee-keeper. His visit to our home was the beginning of a new life to us. It was as if we stood at the beginning of an ever broadening path opening into a new world of wonders, where he showed us that by diligent study and perseverance we could reach the goal after a time. Mr. Cowan handles bees for the love of it, and not for the sake of the money there is in it. We wish there were more in this country who would look upon it in this light.—ED.]

THE HONEY ANTS.

So Distended With the Fluid as to be Almost Incapable of Moving.

The honey ant is a small, red insect extremely demonstrative and active, and found particularly in Texas and Mexico and in considerable numbers in Colorado. Their nests are prominent mounds in some cases, and again are low heaps spread over an area of twenty or thirty square feet, forming a community. As a rule they are nocturnal, working at night, though I have seen them at work in the bright sunlight at 3 o'clock in the afternoon, and marching in a line perhaps seven feet wide

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and forty feet in length to a cottonwood tree, up which they passed long and slender, coming down larger and full of a pure white liquid. It would strike even a casual observer as curious that these ants were carrying home a liquid that could hardly be stored away, ants not having, as a rule, store houses for liquid provisions; but the honey ant overcomes this difficulty in a decidedly novel manner. Certain of the ants either by agreement or selection, are utilized as receptacles for the honey food supply and become literally honey bottles. They are kept by the others in a separate apartment, about six inches long by four in height, that is a store-room. Here, if the nest is carefully opened, the ants or honey bottles will be seen hanging on the wall, looking like ripe currants. The *modus operandi* that results in this is as follows: The ants, at least the small ones, forage for food, and find it in some cases in what are known as galls, curious enlargements of growths, often seen on trees and formed by the eggs of an insect having been deposited in the wood, the latter growing about it and allowing in some cases an escape of a liquid that is greatly esteemed by ants, and certainly tastes like honey. Filling their bodies with this material, the workers proceed to the store-room where the bottle ants are kept and deliver it up to them, the receptacles receiving so much that they become distended to an enormous extent, as we have seen, and are incapable of movement to any great degree. Their bodies upon examination, seem particularly adapted for the purpose, being covered in their normal condition by several plates that spread apart when the abdomen is distended. How long these living bottles hold their store is not known — undoubtedly indefinitely. When the other ants want to draw their rations they proceed to the dark chamber, and a supply is forthwith given up. Such an arrangement seems to show that ants have much more intelligence than they are given credit for, as all their movements cannot be instinctive. In Colorado their nests are quite common about the Garden of the Gods, and the tunnels that they form often penetrate considerable distances into rock, and the work in arriving at the chamber where the honey bottles are hung is one of no little labor.

Color.

C. M. GOODSPEED.

There is a portion of the bee-keeping fraternity who look with deep interest upon the wonderful development of color manifested in the breeding of the Italian bees. In 1859 they came from sunny Italy to this land of bee vicisitudes. At that time the workers all showed three yellow bands on the abdomen the two nearest the body were quite plain but the third in many cases was only visible when the honey sack was full, this condition is true now with direct importation to some extent, but some breeders have carefully selected for color and color only because that was easy, color can be distinguished at once while good working qualities or disposition can only be ascertained after carefully testing. I say breeding to color is the easiest point in the whole list. We have now bees with the dark line between first and second yellow bands entirely gone, instead of three bands we have four and some little show for the fifth and not a few breeders are trying with all their might to drive the dark all off. Friends, I protest; it is a folly to believe a yellow Italian is better than others; where are our large honey producers on this question, without exception they want dark queens, claiming greater vigor and better honey gatherers. As long as the demand exists for yellow queens and four banded bees they will be produced and at a sacrifice of every thing else. Let our breeders give us three bands then vigor of constitution, activity and those general characteristics that built the reputation for the Italian bee, which bee we are fast loosing sight of.

Thorn Hill, N. Y.

Wintered on the summer stands forty-eight colonies of bees in your Eclectic hives. Lost but two.

Grahamville, Pa. C. G. G.

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Beginners' Department.

MOTTO—"Courage and Perseverance."

A SMOKER is a circular barrel of tin resting horizontally on a pair of bellows. This barrel has a tapering nozzle in front, and at the back it is put into communication with the bellows by a tube. Into this barrel is inserted cotton rags, corn cobs, rotten wood, in fact any substance that will produce *smoke.* A mass of the material is made so as nearly to fill the barrel and the end, inserted first, is lighted and allowed to become thoroughly afire when inserted and the bellows at once set to work.

Bees when filled with honey are not apt to sting. They are not then cross —very much as a man feels after dinner, and on this trait in their character depends the success of the smoker. The smoke frightens them, they fill themselves with honey, and are easily handled.

Italian, and a cross between Italian and blacks, are about the best strains of bees we have. The latter cross are called *Hybrids.* They are apt to be more cross than the pure Italian, but they are generally considered a capital business bee. Do not bother with other races. Take the pure Italian and you will get a good enough bee for any apiarist.

Keep track of the blooming of the flowers so that you may in future be guided by these early observations. Make a record of the bloom to aid your memory in after years.

The BROOD CHAMBER is the part occupied by the queen and her young progeny, and is in fact the "living room" of the hive. The garret or upper story is called the surplus department; a better term is SUPER. In the latter place all the surplus comb honey is stored. In a TOP STORING HIVE (the usual style) the sections are right over the brood chamber. In a side storing hive the sections are at the sides or back of brood chamber.

A SECTION is the little box in which the bees store the surplus honey. These run in size from 4¼ x 4¼ inches square by 1 15-16 thick to 6 x 6 inches, the first holding about one pound and the latter two.

A DIVISION BOARD, or dummy, is a board fitting snugly into the body of the hive, parallel to the frames. By drawing these together, on each side of the sets of frames, you economize the heat of the hive and keep the bees from building comb in the space which may not be filled with frames.

Colonies multiply in number by a process called SWARMING. That is most of the bees and the queen, leave in a body and take up residence elsewhere. There is then left some bees, a lot of brood, and generally a few hatching queens. The queen which first hatches is popularly supposed to make a tour of inspection, and kill all the other queens in the hive. We doubt if this always occurs, the bees probably doing most, if not all, of the destructive work. As a queen's capacity for laying eggs is enormous this swarm that has issued will soon be a strong colony, particularly if given frames full of combs or full of foundation.

FOUNDATION is a sheet of wax upon which has been pressed the shape of the bottom of the cells of regular honey comb. It is an invaluable aid in building up a colony, and as one prominent bee-keeper remarked, that when really needed, foundation was worth $5 per pound to the bee-keeper.

When a swarm is first placed in a hive, it is best to shade it from the hot sun because, when swarming, bees are excited and the colony more hot than when simply working. On the evening of the day you have hived the swarm, place the hive on the stand where you propose to leave it, as the bees in going to work the next morning will mark well their new position. Be careful if you hive a swarm on to frames filled with foundation that the great heat and weight of bees does not cause the wax to melt down. A simple remedy is to put wire from corner to corner and press into the wax with a button hook, having a notch filed lengthwise of the curve of the hook. This will strengthen the frame and hold

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the foundation up and prevent stretching, which is known by the term *sagging* in the bee-keeping world. An ENAMEL CLOTH is generally used to lay on top of the frames to exclude the bees from the upper story till the super is ready to go on. The glazed side is always placed downwards. When the supers go on, this cloth is placed on top of them. Eggs in the cells will indicate whether the queen is all right—by holding a comb so the sun shines down into the cells will enable you to see these eggs plainly. The eggs should be attached by one end to the face of the cell at or near the center. If more than one egg is found it may indicate either a very poor queen or a very good one. The first lays more than one because, as some say, she has lost her pudding bag string, and the second because she is very prolific and goes around laying a second or third egg in the same cells.

Keep your colonies strong. Do not increase more than once to each colony. Give your bees the *necessary* attention and at all other times leave them alone.

What to do With Old Comb Candied Honey.

I have got a lot of old comb with some honey in it. How can I best use it up to feed back to the bees. Some of it is one year old or more, and somewhat candied. Please give me some information if you can. J. S. L.

[To get candied honey out of comb and save both comb and honey is a rather knotty problem. We would advise you to try the following: Place the comb honey in just enough water to cover it, and heat it to the point where the wax melts and no hotter. Let the wax all rise to the surface, and either skim at once or else allow to cool, and then remove. Now strain what is left through a coarse towel and evaporate the clear portion over a slow fire till it is of the consistancy of good honey. You can then feed this to your bees.—ED.]

The Mail Bag.

Bees wintered fine in this part of state, working fine now and expect swarms in course of eight to ten days.

WM. M. END.

Metuchen, N. J.

Dear Editor:

I am happy to say that your journal is read in Jamaica, W. I., by several people, and it is having the effect of improving apiculture considerably. For my part, I would not be without it. Yours very faithfully,

I. ERASMUS OWHR.

Kingston, Jamaica, May 8, 1888.

Have not taken my bees out of the cellar yet. Shall the first warm day. Has been a backward spring so far. Mr. D. D. Winn, of Ludlowville, has taken his bees out of cellars and reports all alive. I think he has about two hundred swarms. Yours truly,

GEO. L. FERRIS.

Five Corners, N. Y., April 23, '88.

Editor Bee-Keepers' Magazine:

DEAR SIR:—I feel as if I might say a good word for the MAGAZINE. I am taking no less than seven bee journals and magazines, and I can truly say I like them all, and I rate the BEE-KEEPERS' MAGAZINE as first-class. Wishing you success, I remain yours respectfully,

D. C. BUCK.

Dundee, Mich.

Editor of Bee-Keepers' Magazine:

Winter commenced very early in this locality, about the 22d of October, but was on the whole quite mild up to the commencement of the new year. Since Jan. 2d it has been cold, with frequent storms. Snow is now two feet deep in the woods. On the morning of the 16th inst. the mercury was 34° below zero. Bees are in fine condition, so far as can be judged from outward appearances. With best wishes for the MAGAZINE and its proprietor, I am sincerely your friend,

JOSHUA BULL.

Seymour, Wis., Jan. 17th, 1888.

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Mr. Editor :

I will say I am a novice bee-keeper. I bought a colony of hybrids one year ago this month. I took a swarm off the 17th of June. Late in the Fall I bought six more colonies. I have fed one syrup ever since in November and another since the 17th of February. One is a little weak, but it has some brood now. The one I fed syrup to all winter is as populous a colony as I have. I wintered my bees on summer stands, but I packed them with leaves in the fall and have not unpacked yet. I have not lost a colony this winter, but there was a good many lost in this section of the country. I expect to make bee-keeping a specialty as soon as I ean get colonies enough.

J. H. KEMPER.

South Pond, Ind., April 9th, 1888.

Dear Editor :

Will you please tell me through the BEE-KEEPERS' MAGAZINE, if such frames as are used in the Eclectic hives can be used in any Langstroth hive? What is the width of the top bar? Won't the bees fasten the honey case to them the same as they do when the narrow top bar is used without honey board? How would a cellar built in the side of a hill covered with dirt and hay do for wintering bees in; the soil is sandy; such cellar would be frost proof. Would it be necessary to have a stove to keep the temperature above 40 or 45°? What kind of ventilation would be necessary? I want to build such a cellar or cave for next winter, and should like to know just how to do it; will have ten or twelve hives, and shall want to increase to twenty-five or thirty, which will be as much as I care to keep.

Yours truly,

A. F. AMES.

Ewing, Neb.

[Such a cellar would answer very well. By placing the colonies close together the temperature would rise to 40° probably. This cellar would be on the same principle as what they call a clamp. Do not make the cellar any larger than is necessary to hold the average number of colonies you intend to keep. The frames spoken of will fit any Langstroth hive. Width of top bar is 1⅜. Yes, the bees will propolise the section case to top of frames as in any other hive.—ED.]

Editor Bee-Keepers' Magazine :

My bees did almost nothing last year, but I live in hopes of better luck next year, and hoping you will tell us amateurs in future numbers how to manage our healthy and flourishing swarms so as to *make them deposit honey in boxes.* I send you another subscription.

Yours faithfully,

A. B. RICH.

Short Hills, N. J., Jan. 25th, '88.

[We believe that the following method to be a rational and successful one. If the swarm comes out when there is a honey flow, that is when flowers are secreting honey, hive them on empty frames, or the better way is to have starters of foundation, say an inch long, placed in the top of each frame. Now place your rack of sections, *filled with foundation*, on top of the brood chamber, using a perforated zinc honey board between. The bees, having no room to work in the brood chamber go at once into the sections. If your bees refuse, under any circumstance, to work in the boxes, change your queen.—ED.]

Flat Bottom Foundation—Question for July Number.

Dear Sir :

Please put the following question in the question department of the MAGAZINE for June, if it is in time, if not, put it in the July number:

Is flat bottom foundation as good as other for brood chambers or surplus department?

Respectfully, L.

East Sidney, N. Y.,

[Let us hear from all sides on this question, except from the manufacturers or those interested in the sale of foundation.—ED.]

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Our Clubbing List.

We offer the following unusual Clubbing List. We consider them *first-class* periodicals, and we cannot too highly recommend them :

	Regular Price.	Price with MAGAZINE.
The Farmers' Magazine,	$ .50	$ .85
The Poultry Keeper,	.50	.85
The Practical Farmer,	2.00	1.75
Agricultural,	1.00	1.25
Prairie Farmer,	1.50	1.65
American Agriculturist,	1.50	1 65
Scientific American,	3.00	3.05
Century Magazine,	4.00	4.00
The Independent,	3.00	3.00
American Horticulturist	1.00	1.25
National Journal of Carp Culture,	.50	.80
Orchard and Garden,	.50	.85
Tuttle's Photograph called "Medley of 120 Prominent Bee-Keepers,"	1.00	1.25
The Poultry Monthly (new subscribers)	1.25	1.45
The Western Rural	1.50	1.75
Harpers' Monthly	4.00	3.75
" Weekly	4.00	3.90
" Bazar	4 00	3.90
" Young People	2 00	2.25
St. Nicholas		3.25
Photographic Times (weekly)	3.00	2.85
Photographic Times (monthly)	2.00	2.00
Planter's Guide, without premium	50	75

NEW YORK HONEY MARKET.

White clover, 2 lb. sections, 12 to 14c.; 1 lb. sections 15 to 17c., with slow demand. Buckwheat, 1 lb. 11c.; 2 lb., 10c. Goods moving very slow. Can guarantee these prices only for extra fancy goods.

EXCHANGE DEPARTMENT.

Exchanges not to exceed 6 lines, inserted free.

WANTED TO EXCHANGE.—1 vol. *Youth's Companion*, 1884, 1 vol. *Pinsy*, 1883, 32 Nos. *Library Magazine*, and 7 Nos. *Phonographic Magazine*, for one setting (12) Pea Fowl eggs. Write first. BURR FARM, Angelica, Alleganey Co., N. Y.

I would like to exchange 1 vol. of *The Little Farmer*, 11 months of the *Canadian Bee Journal*, '87 8, and 1½ vols. of the *American Rural Home*, for 1886–7, all in good order and home bound, for Newman's *Bees and Houey* or Cook's *Manual*. Write first. W. Matthews Barnum, Angelica, N. Y.

WILL exchange eggs from high soaring, rose comb, brown Leghorns, for tested Italian queens, thin or thick foundation, boxes or offers. Address Geo. L. Ferris, Prairie Farm, Five corners, N.Y.

WILL Exchange first-class Homing Pigeons, stock represents some of the best lofts in the country, for a colony of Italian Bees or a 22 calibre Ballard or Stevens Rifle. Address Jos. A. Eibel, Lancaster, Pa.

I WILL exchange 100 White Star Queens and introducing cages for two lbs. of Bees with untested queen. A sample cage will be sent for 5 cts. in stamps. D. C. Buck, box 276, Dundee Mich.

WANTS.

Advertisements in this column not to exceed 8 lines, 5 cents per line for each insertion.

WANTED.—A purchaser for Italian Bees (fine condition) in Chaff Ec ctic Hives, $5 per colony or some in shipping boxes $1.50 less.
J. M. BEAMAN,
Westfield, New Jersey.

All advertisements must be received by us on the 18th of the month, to insure insertion.

FOUNDATION. GOOD WORK. FRESH Goods. J. J. PARENT, Charlton, Saratoga Co., N. Y.

MY 20th ANNUAL PRICE LIST of ITALIAN, Cyprian, and Holy Land Bees, Queens, Nucleus Colonies, and Apiarian Supplies, sent to all who send me their name and address,
H. H. BROWN, Light Street, Col. Co., Pa.

SEND 20c silver to have your name published in our Agents Direciory 12 times and monthly paper free one year to first 10,000 persons answering this "ad." Try us. SHAW & SHAW, Shaw's Mills, N. C.

TRANSFERRING.

Full particulars how to transfer bees from Box Hives to Movable Frame Hives, given in BEE-KEEPERS' MAGAZINE No. 5, of Vol. XV. Price 5 cents. To be had at this office.

AGENTS WANTED!

To canvass for one of the largest, oldest established, best known Nurseries in the country. Most liberal terms. Unequaled facilities. GENEVA NURSERY. Established 1846.

W. & T. SMITH, Geneva, N. Y.

Mentioe this Magazine when answering advertisement.

NOW READY.

Handsome and instructive circular and price list of Bees and Queens for 1888, from the

KNICKERBOCKER BEE FARM.

Send your address on postal and get it. Address

GEO. H. KNICKERBOCKER,

Box 41. Dutchess Co. PINE PLAINS, N. Y.

Mention this Magazine when answering advertisemtnt.

OLD CUSTOMERS.

I am ready to receive orders for Eclectic and Chaff Eclectic Hives and fixtures, such as Sections, Frames, Box Holders, and Crates. Also Foundation, Smokers, Veils, and other apiarian supplies. Write for prices.

JOHN ASPINWALL,
Barrytown, N. Y.

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SECTIONS, SECTIONS

We are turning out the very finest one-price sections in the market and sell them VERY CHEAP. Also bee hives, frames, shipping crates, EXCELLENT and very cheap, Write for free illustrated catalogue.

G. B. LEWIS & CO.,
Watertown, Wisconsin.

Mention this Magazine when answering advertisemen.4

THIN FOUNDATION.

In order to convert into cash, as rapidly as possible, some of our machinery, and all the wax remaining on our hands at the close of the business, we have exchanged them with Messrs. J. VanDeusen & Sons for some of their Superior Thin Flat Bottom Foundation in 25 lb. cases, which we will sell, by the case, at 50 cents per pound. THIS IS A GREAT BARGAIN !

JOHN ASPINWALL,
Barrytown, N. Y.

Binders for Magazine.

Nothing could be more valuable or economical than these binders for preserving your MAGAZINE. No lost numbers. They save having your paper bound and cost but 50 cents post paid. Send for one.

BEE-KEEPERS' MAGAZINE,
Barrytown, N. Y.

1884. **TAR-HEEL APIARIES,** 1888

ABBOTT L. SWINSON,
PROPRIETOR,
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To the readers of the Magazine, the Smoker formerly manufactured by its Publishers, both past and present, needs no introduction ; its reputation has been well established, neither do I appear as an entire stranger to them, having for a number of years made the Smokers for the proprietors of the Magazine, who have now retired from the supply business. I will continue to make them at a greatly reduced price for the bee-keepers direct.

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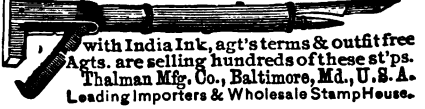

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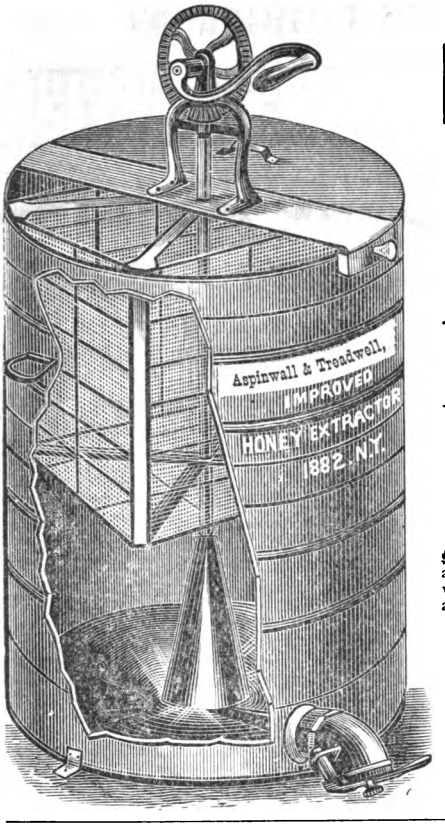

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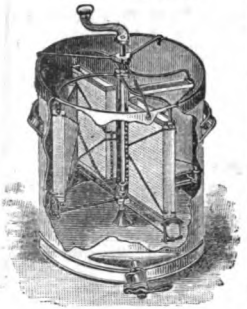

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Any quantity, any size.

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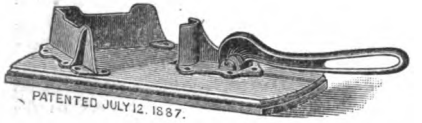

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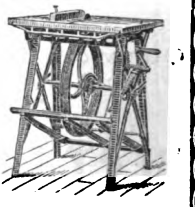

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We give our personal attention to the care and sale of all kinds PRODUCE including HONEY and BEES-WAX.

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We employ no Agents.

Reference: Irving National Bank.

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Vol. XVI. JULY, 1888. No. 7.

THE BEE-KEEPERS' MAGAZINE.

Devoted to Bee Culture

JOHN ASPINWALL,
EDITOR AND PROPRIETOR,
BARRYTOWN-ON-HUDSON,
NEW YORK.

H. Gilmour, Inc. N.Y.

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THE BEE-KEEPERS' MAGAZINE.

50 CENTS PER YEAR.

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BARRYTOWN-ON-HUDSON,
NEW YORK.

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BARRYTOWN, JULY, 1888.

EDITORIALS, &c.

INSTRUCTIONS TO CORRESPONDENTS.

Correspondents writing matter for publication will confer a favor on the editor by writing on only one side of the paper, and giving their full name and address. The latter will be given in the MAGAZINE, unless there is a request to the contrary. Kindly write matter for the MAGAZINE on a separate sheet from business communications, so that we may not have to mutilate business letters to get at the literary matter. Rejected manuscript cannot be returned unless stamps are forwarded for that purpose.

IT WOULD seem that when a man performes a kindness, he seldom gets any credit for it.

The Dairy Commissioner of the State of New Jersey, some time since, went out of his general line of duty and made some investigations into the purity of jar honey, as found on the grocer's shelves, in the several large towns of his State. The result of this investigation showed that packing houses, as a rule, were putting up adulterated honey. We believe we have the honor to be the only bee paper in America, to give this commissioner the credit he deserves. It has pleased both the editors of *Gleanings* and the *American Bee Journal*, to discredit the work of this commissioner, and throw cold water on his good labors.

We are not certain whether either of them know anything about the analysis of honey and other saccharine bodies, but presume, from their editorial remarks, that they do not.

We do not advocate or believe in the use of glucose in any form, either for feeding or otherwise. At the New York State Convention, Mr. Root said that in Ohio, some honey taken from the hives was examined by a chemist and found adulterated, and yet the bee-keeper declared the honey to have been stored by the bees. If he used the food receipt of Mr. A. I. Root, to stimulate and then extracted it, no doubt it *was* adulterated and the chemist was right. However, we must not judge entirely without the real facts, as *Gleanings* and the *American Bee Journal* have done. They have both pitched into the commissioner's work without knowing the facts. They dash at the "comb honey" item without seeing that this was simply the legend on the label and that the contents were not comb honey, but as the "commissioner" has so clearly put it, in a letter published in this issue, the contents were put up *à la* Hoge, a small strip of pure comb honey "floating in a sea of glucose."

The editor of the *American Bee Journal* has gone quite off the hooks, as he did in the case of Mrs. Thomas, and the absurdity of his editorials, is apparent, when it is stated that he (the

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editor) has evidently made no investigations into the standing of the dairy commissioner and that there was no comb honey analyzed. By referring to page 108 of MAGAZINE, it will be noted that at the head of the results of the analysis are placed the words "*strained honey*" and that the words "comb honey" was simply the legend on the label. Men who adulterate will not hesitate to lie.

If *Gleanings* and the *American Bee Journal* wish to join hands with those they call "*the honorable gentlemen*," who put a small piece of comb honey in a "sea of glucose" the bee keepers of America will judge them as they deserve.

We are at a loss to know why *Gleanings* and the *American Bee Journal* should take sides with the adulteraters who are ruining the honey market of America. The labels on this bottled honey, are as great a lie as any Wiley ever told, and yet Mr. Newman and Mr. Root both call the man who put up this vile trash, "honorable men." Shame on you, brother editors! We do not impute to you dishonorable motives in taking sides with these rascals, but simply believe you do so through ignorance. *We* propose to fight adulteration whenever and wherever it appears.

W. B. WEBSTER, First Class Expert B. B. K. A., has written a very comprehensive little work on Bee Keeping, which is being published by Lupcott Gill, of 170 Strand, W. C. London. It is refreshing, in this age of advertising, to be able to read a new work on bees, that is not of the Warner's Safe Cure order. The tendency of authors in this direction, is not as strong abroad, as here, and we most heartily hope the day will come, when, the bee keeping fraternity will put on enough dignity to cease publishing books and pamphlets, purporting to be written solely for instruction of bee keepers when in reality they are nothing but advertising instruments of the authors. Mr. Webster's book of over 100 pages sells for 25 cents. It is well illustrated and the size of the book is 5 x 7 inches.

THE figure of the Rev. L. L. Langstroth stands out boldly in the apicultural world, and takes rank with the great old bee masters now dead. This man who has given us that beautiful work on bee culture and who first invented, and introduced, the most practical hanging frame, stands in want, almost, of his daily bread. This should not be. Every bee-keeper who uses any of the hanging frame hives in America to-day owes a debt that he should attempt to repay while the great man is still alive. Send him some hard cash, that the last years of his life may be surrounded with ordinary comfort, if not with luxuries. Send it to Rev. L. L. Langstroth, Dayton, Ill.

AS WE go to press we note that Major Van Hruschka, the inventor of the honey extractor, has gone to his rest. Many an apiarist will feel as if he would like to place a wreath of nectar-giving flowers on the tomb of the man we can truly call a benefactor.

WE have received through the kindness of Mr. L. C. L. Jordan, a copy of the twenty-ninth annual report of the Trustees of the Cooper Union. No work could be more noble in its purpose than that carried on by the Union. There are among others two great motives in life, which actuate all mankind. Pleasing oneself and benefitting others. The first is unfortunately too common the second lamentably scarce. The

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Cooper Union is founded on the second motive and should always stand out as one of the grandest institutions of the age. We are glad to note its prosperity.

For the Bee-Keepers' Magazine.

MOLLY HEATH'S VENTURE.

A Serial Story.

BY JULIA ALLYN.

PART SECOND.

(Continued.)

The young people of Marston were especially favored in a social and literary point of view. The Orthodox and Episcopal clergymen were both young and public-spirited men, who entered with enthusiasm into any project which would promote the welfare of the community in which they lived. Through their united efforts a Young Men's Christian Association had been formed, and two large rooms had been rented in the bank building, which were used, one as a library and reading room, and the other as a hall where literary meetings and festivals could be held. These rooms were tastefully decorated and adorned with choice engravings and were made very attractive to the young people who assembled there.

The Marston Literary Circle, or Lyceum, was a branch of the Young Men's Christian Association, and included the larger part of the school boys and young men of the village. The meetings where held in the hall described, the first and third Friday evenings of each month, and topics of general interest in the fields of science, religion and politics were brought up and freely and interestingly discussed. Very often the clergymen mentioned, or prominent lawyers or business men, would be present and talk familiarly with the young men on some subject about which they desired information. Thus the society was a wide-awake one and a means of culture to the lads. Twice during the winter the parents and young lady friends were invited, and at the close of the literary exercises an hour was spent in a social way with music and refreshments. For these general meetings especial care was taken to have an interesting and pleasing programme.

Rob Heath was considered one of the society's most talented members, and he had often been urged to suggest some subject for the meeting, and accordingly when he became interested in bee-keeping the thought that this subject would, from its novelty, attract all, occurred to him, and upon mentioning the plan, the society had unanimously voted that he be requested to read a paper on apiculture at the December meeting. The meeting appointed for the lecture proved to be a bright moonlight one, the sleighing was excellent, and the young people of Marston attended in large numbers.

Ned Sterns had invited Mollie to go with him in his cutter, and Mrs. Heath and Nan, with Tom and Rob followed in their sleigh. Since Ned had been with his uncle at the woolen mill he had taken quite an active part in the association work, and had become so popular that the young men had elected him president.

At half-past seven precisely Ned took his seat as presiding officer, and calling the meeting to order, after welcoming the guests, introduced Rob as the speaker of the evening and announced that Tom would preside at the blackboard and explain the numerous illustrations which he had skillfully drawn. Rob, producing his manuscript proceeded to read as follows:

"Apiculture, or the science of bee-keeping is one of the most interesting as well as profitable employments known. The keeping of bees for pleasure and recreation, as well as profit, has for many ages attracted the attention of man. Indeed this science dates back to such remote times, that the origin of bee-keeping is not known. As far back in Bible times as when Joseph's father sends to him, the then unknown ruler in Egypt, presents by his brethren, honey is mentioned as included among the other gifts. A little later on the spies sent to view the promised land speak of it as 'a land

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flowing with milk and honey.' Still later the famous riddle propounded by Sampson 'Out of the eater came forth meat, and out of the strong came forth sweetness,' had its origin in the fact that Sampson had found a swarm of bees in the carcass of a lion. Indeed many are the allusions both in the Old and New Testaments to honey and bees. Aristotle wrote of the busy insect more than three hundred years B.C., and about three hundred years later Virgil makes mention of them. Swarmmerdam, a Dutchman, in the middle of the seventeenth century wrote a book about 'The Natural History of Bees.' We are also greatly indebted to Huber for his researches in apiculture.

"Mr. Langstroth, sometimes styled 'The father of American Apiculture,' has given us in 'The Hive and Honey Bee,' a very valuable treatise on the subject of bee-keeping.

"So much for the general history of bee-keeping, let us find out about the natural history of the bee. The bee belongs to the class *Insecta*, to the subclass *Hexapoda*, to the order *Hymenoptera* and to the family *Apidea*, to the genus *Apis*. The *Apis Ligustica* or Italian bee is the one we will describe minutely. These bees were first noticed by Spinola, in 1805, who gave them the name of Ligurean bee, by which name they were known in Europe. The name was derived from the fact that the bees came from a province in Northern Italy, north of the Ligurian Gulf or Gulf of Geneva. This region is shut off from Northern Europe by the Alps, and here in the warm, genial climate of Italy, was developed a distinct race of bees, the gentle and beautiful Italians. In 1860 Mr. S. P. Parsons brought to America the first colony of Italian bees imported direct from Italy. The Italians are now generally considered the best for practical bee-keeping, although there are many other classes which are liked. Among other varieties are the Cyprians, the Syrians, the Egyptians, the Dalmatians, the Herzegovinians, the Smyrnian, the German or black bees and the Carniolans.

"Let us confine ourselves to the consideration of the Italians. Bees are divided into three general classes: The queen bee or the mother bee of the hive; the worker bee, who gathers the the honey, and the drone or male bee. From illustrations on the blackboard you perceive that the queen bee has short wings, but is long and slender in shape, being about seven-eighth of an inch in length; she is a fully developed female, and the entire base of her abdomen and sometimes nearly the whole of it is a golden yellow. There is but one queen in each colony and it is her function to lay eggs; sometimes in the honey season she lays as many as two or three thousand a day. The queen may live from three to four years and is pre-eminently a home body, leaving the hive but twice, once when about five days old, when she takes her wedding flight and meets a drone in mid-air, and later on when she accompanies a first swarm. The other inhabitants of the hive are her loyal subjects and feed her, caress her and pay her all due deference. The worker bees are undeveloped females, and are shorter than the queen, measuring little more than half an inch, and have long hairy *lingulæ* or tongues, an illustration of which is given, and are the honey gatherers of the colony. There are generally from fifteen to sixty thousand of them present during the honey season. At this time, called the busy season, the life of the worker bee is of short duration, sometimes lasting but a few weeks, but during the cooler part of the year they live from six to nine months. They have a sack for carrying the honey which they gather from the flowers with their long tongues; they also have grooves on their thighs which contains the pollen which they collect in little balls with which to feed the young and immature bees. The worker bees also carry to the hive a resinous gum called propolis, which they obtain from the leaves, buds and trunks of treees and plants and use for filling in holes and cracks in the hive. Both the queen bee and worker bees are provided with an instrument of defense, the sting. Enlarged by the microscope or as drawn on the blackboard one perceives it to be a beautifully fashioned

instrument, its delicately tapering point barbed like a fish-hook. The sting is composed of three parts, the outer shell and two barbed spears that slide partly inside of it. When the point of one spear penetrates far enough to get one barb under the skin the bee has made a hold and has no difficulty in sinking his sting the whole length into the wound, for the pumping motion commences, operated by small powerful muscles which work with sufficient power to send the sting through a thick leather glove. The working of the spear pumps down the poison which affects some persons much more disagreeably than others. The bee can use its sting but once, for in parting with it, it loses its life. Bees do not usually attempt to sting except when annoyed or in self defense.

"The drones or male bees are stouter and more bulky though somewhat shorter than the queen, being a little less than three-quarters of an inch in length and their wings are long enough to cover the entire abdomen. They are generally found in the hive from May to November, when they usually number several hundred. They are easily recognized when flying by their loud noisy hum. They are physically disqualified for performing any labors in the hive. Their proboscis is too short for extracting the honey from flowers, and being destitute of a sting they cannot aid in protecting the stores from robber bees. They are necessary in the swarming season for the impregnation of the queen, and when this service is accomplished or when honey becomes scarce they are driven forth by the workers and destroyed. The drones are lazy fellows and often allow the workers to feed them, and as oftentimes their presence occasions an unnecessary consumption of honey, it is often thought expedient by bee-keepers to decrease their number by the use of of a drone trap.

"Let us now take a hive of bees and speak about some practical matters in bee-keeping. Experience is needful in this, as in every undertaking, to become successful. It is best to commence with only two or three colonies. Take this hive for instance: It is a Langstroth Simplicity hive. I will open it and show you how it is arranged. The hive itself should be made of good pine or whitewood lumber, thoroughly seasoned and planed on both sides. The lower part contains ten frames hung on rabbets and prepared with wire and foundation, all ready for the bees to take possession. Part of these frames are used for brood and part for storing honey. If you take a frame out of an unoccupied hive early in the spring you will observe cells differing in appearance, often on a single frame. For instance here are cells of worker bees, next cells of drone bees and near by queen cells forming. You will notice that the drone cells are larger and of different shape from those of the worker bee, and the queen cells are larger still and project in long, tapering points and are in shape like a thimble. The skill of the worker bees in building the comb is something wonderful. Prof. Cook, in 'The Bee-Keeper's Guide,' gives the following description of cell building: 'The structure of each cell is quite complex, the base is a triangular pyramid whose three faces are rhombs and whose apex forms the center of the floor of the cell. From the six non-adjacent edges of the three rhombs extend the lateral walls of the cell. The apex of this basal pyramid is a point where the contiguous faces of three cells on the opposite side meet and form the angle of the base of each of three opposite cells. One side thus braces the other and adds much to the strength of the comb. Each cell then is in the form of a hexagonal prism terminating in a flattened triangular pyramid. The bees usually build several combs at once and carry forward several cells on each side of each comb censtantly by adding to the number by additions at the edge.' The process of comb building as given by Huber was thus: 'The bees abstract the wax scales, carry them to their mouth, add the frothy saliva, and then knead and draw out the yellow ribbons which were fastened to the top of the hive or added to the comb already commenced.' The diameter of the worker

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cells averages a little more than one-fifth of an inch, the drone cells a little more than one-fourth of an inch, the depth of the worker cell a little less than half an inch, those of the drones a little more than half an inch. When used solely as honey receptacles these cells are often drawn out so as to be an inch long. The capping of the brood cell is dark, porous and convex, while that of the honey cell is white and concave.' The character of the cells therefore we perceive depends upon whether drones are needed or honey to be stored.

"It is interesting to notice, as shown by illustrations, the bee in its different stages of development from egg into larvæ and then into the baby bee, and when watching the growth of the live bee we are astonished to find how naturally it assumes its duties, first, of feeding those younger than itself, then of fanning or ventilating the hive, and at length the more active duties of gathering honey and making comb. Some one asks where the wax comes from with which it builds the cells, and we find the answer that 'it exudes from the rings or folds of the abdomen of the worker bees.' The development of the queen, which the other bees feed with royal jelly, is one of especial interest, and if there exist two or three queen cells at the same time, on the sixteenth day, when the queens gnaw their way out, unless the workers have assisted them to uncap the cells, we may expect to hear a weak, piping war cry between the two rivals and then witness a conflict which ends in the destruction of one and the victory of the other; for but one queen rules at a time, and to her all the other members of the colony pay homage.

"But let us now examine the upper part of the hive. Here we have twenty-four one-pound boxes in which the surplus honey is stored. From this extra honey, which is sold either as comb or extracted honey for from twenty to thirty cents per pound, according to its quality, comes one source of the bee-keeper's revenue. The quality of the honey depends greatly upon the flowers from which it is gathered. The apple blossom and white clover honey are considered superior to other kinds, but there is an almost endless variety of flowering shrubs and plants from which the bees gather their harvest of sweets. Among them we mention willow and alder, fruit trees of all kinds and the basswood; among small fruits, the red raspberry; among shrubs the sumac, witch hazel, hawthorn, Virginia creeper and many others; among perennial plants, white and alsike clover and sweet clover, golden rod, asters, borage, catnip, motherwort and thoroughwort, among annuals buckwheat, mignonette; mustard and turnips. Quite a list of flowering plants, especially for honey, appear as Rockey Mountain bee plant, bee balm, Simpson honey plant, Chapman honey plant and a number of other varieties, all of which are valuable if one have space and time for their cultivation. The comb honey brings a higher price than the extracted honey and is easier to handle, but there is much satisfaction in preparing the extracted honey. As we see the golden stream pouring down the sides of the extractor, driven out by the centrifugal force as the comb revolves in the frames made to hold them, and afterwards as we pour the yellow liquid into the dainty glass jars or pails in which it is delivered to the purchaser, we feel that the pure honey thus obtained is very desirable.

"As the requisites for success in bee-keeping, a person should have confidence, should work gently and moderately when handling the bees. It is best to be provided with a veil of black silk gauze which should come down over the shoulders, and gloves, and a smoker should be used on opening the hive. The bees, if handled carefully, soon become used to the keeper and very seldom molest him. In swarming time empty hives should be in readiness and a perforated box with long handle is sometimes needed to reach the cluster. By noticing frequently the formation of the queen cells, the time of swarming can be determined very nearly, and often it is deemed easier to separate colonies, or swarms, artificially

instead of letting them swarm naturally. Rules for doing this are given in a number of good, reference books.

"For information contained in this article we are greatly indebted to 'The New Bee-Keepers' Text Book, the 'A, B, C of Bee Culture,' and the 'Bee-Keepers' Guide.' Should any one wish to see an apiary in working order they can call at the Heath apiary, Rosecroft, early next May, and observe for themselves the internal arrangement of a hive.

"When we consider that the number of colonies of bees in the United States in 1881 were 3,000,000, and the honey production for that year was more than 200,000,000 pounds, and the cash value of that year's crop was $30,000,000, and that in the years since much larger figures have been reached, we realize that apiculture is an important factor in the revenue of our country, and we urge the importance of more thorough information in respect to this science, in which we see so plainly the wonderful workings of a Divine Creator, and a more general adoption of bee-keeping as an occupation. For women, as well as men, it has proved a lucrative employment and one condusive to health. Let us then intelligently consider the subject, learning from it lessons of wisdom in the industry of these little insects ourselves, and presenting its attractions to others."

"Well, Molly, those closing sentences were yours," said Ned, as he handed her some refreshments at the close of the lecture.

"Rob came in for the history part, Nan for the flowers, and Tom for the money and advertising items. I think it was very well done, if only the women had been left out of the business part of the subject."

"Now, Ned, you must not say anything against apiculture. I think the folks listened quite attentively and will read up on the subject. You might get your uncle to donate some books on bee-keeping to the library here."

"I will do so on one condition, that you will make the firm 'Heath Brothers,' after one more year," said Ned.

The lecture was pronounced a success, as was also the delicate honey cakes which were passed round with the ice cream later in the evening.

For the Bee-Keepers' Magazine.

Treatment of After-Swarms.

H. H. FLICK.

After-swarms are all swarms that issue after the first or prime swarm is gone forth. The first swarm is usually accompanied by the old queen, and if we then examine the combs we find a number of queen cells in various stages of development. This, however, is not always the case, for I have found Italians issuing without any queen cells being started. The second or first *after* swarm will then not issue for some time, whilst in cases of sealed cells being in the hive when the first swarm leaves a second may be expected in from seven to nine days.

If the apiarist desires increase only it may be desirable and even profitable to hive all after swarms that come out early in the season having enough bees to constitute a swarm. But if honey is to be produced all after swarming should be prevented, for it is a well established fact with me that so long as the swarming fever is upon a colony they gather comparatively little surplus. The usual way of preventing after-swarms is to examine the combs some time, say in a week, after the first swarm has issued and cut out all queen cells except the oldest and best. This will do if every cell is found, but cells are so easily overlooked that this is not a sure plan, so I run my apiary for honey. I aim to prevent swarming as as much as possible, and at the same time retain a large force of workers, and to do it with as little work for the apiarist as possible. It is done in this way: Have a nucleus ready early in the season, with a laying queen; then when my first swarm issues I remove the old queen and run the bees into the nucleus, giving them enough combs to accomodate them; the old queen is left to go back into the hive where she came from, the colony being weak in numbers will at once, upon the return

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of the old queen, destroy every queen cell, thus doing the work themselves, and thoroughly, that otherwise had to be done by the apiarist. This colony is A. In a day or so B will swarm. The queen is taken from the swarm and caged; the bees in A are subdued by smoke and the swarm from B is run in with A, thus making the worker force as strong as ever. The queen from B is returned to her own hive which will tear down every queen cell and the work is done. The swarm that issues from C is put into hive B, and the queen returned to C. This process can be continued *ad libitum*. In case of several swarms coming out in one day the bees can all be put in the last hive that destroyed its queen cells and plenty surplus room given. Such colonies will produce an enormous amount of honey and be the most profitable in the end.

Mayfield Farm, Lavansville, Pa.

Read at the Eastern N. Y. Convention.

Marketing Honey at Home.

WILL M. KELLOGG.

As I have been requested to write on the above topic, perhaps I can do no better than give some of my experience in that line, for what we have learned from our own work is surely better than any theory. I have been working faithfully for seventeen or eighteen years to establish a home trade for my honey, and though it was slow, up-hill work at first, I kept gaining all the time till I have reached a point where I find ready sale for all, and more honey than I can produce. My first effort was with extracted honey, an article then almost unknown, strained honey being all the liquid honey we had. I made the first extractor (or *slinger*, as it was called) that I ever saw, or that was in this vicinity, a small one that I could carry, and for several years I had considerable to do each year transferring bees and throwing out honey for other parties. Thus going around and through town with my bee tools in one hand, and my slinger on the other arm, the people became familiar with slung honey, many coming to see me do the work, and it was not long before they knew and spoke of the difference between the new product and the old. Of course I had it to sell, and pushed it the best I could, but relying mainly on the grocers for the sale. As my experience and the number of stocks increased, so did the amount of honey produced, and I had to resort to other methods for sales. I visited neighboring towns and sold much in that way but was met there by other producers, and the grocers gave their own customers the best show, so I later drifted into being my own salesman, and it has proved the best of all. Like too many others I felt that a crop of honey like a crop of small fruit must be hustled off as soon as possible after being harvested, and it is this idea, coupled with the one that some one else will get there first, that keeps down the price of honey, for nearly all do it, especially the man with a few boxes or hundred pounds. I talk honey to every person I get a chance to, friend or stranger, at least once in a season, not obtrusively, but in a general talk; find out if they use honey, if I can supply them with what they need, talk trade if I can't see cash. Another point I make is too make no fuss over my business; don't bore people with details. I keep still as to what my yield is, and I always have honey to sell, if I don't have it I scratch around and find some. It never bothers the public whether I have a good crop or a poor one; nine out of ten have no idea but what bees make about so much honey each year. My crop for '86, over 7,000 pounds, was the most I ever produced, except one year it exceeded 10,000. I kept pushing the sale of it with few knowing how much I had. I traded for everything we could use and sold for for cash, and worked off about 5,000 pounds, at ten cents for extracted and fifteen cents for comb. The drouth of '87 cut my crop down to 625 pounds, the least I ever produced, but I have about honey enough to keep selling till white clover comes, drawing on the balance of that of '86. My show case at the grocery is kept filled now with comb honey produced over eighteen months

ago, and with extracted honey of last year. My town trade is light, but I sell honey all through a region at least thirty miles across, the purchasers coming to my honey house door, or having it sent them by rail.

I have also worked up quite a trade in other States by talking honey when writing on other business. But I tell you my friends, the one great point above all others is to always send out honey of *first class A No. 1* quality. That kind of bread will always float back to you. Thoroughly well ripened honey, put up in clean packages, will never disappoint customer or seller. I never extract any more honey during the season than enough to supply the call for it, but I leave it all upon the hives till the season is over, for I am convinced that the bees can take care of and ripen it better than I can.

I produce both comb and extracted honey so that I need never turn any customer away. I have peddled honey through the country from a wagon, and made a success of it, but later on found that I could make more to stay at home after I had once gotten my name advertised over the country as a honey man. People come to me now to buy honey whom I never saw before, having tasted some a friend had bought. I have no use for commission men in the sale of honey, and it seems to me that any practical bee-keeper, who would bestir himself, advertise his honey by his talk, hand out *always* a first-class article, neat and clean, can find local sale for all the honey any one locality can produce, provided the field is not too full. I have many to compete with but they are falling off every year, and those who stay are the ones who don't get wild, are satisfied with a steady year 'round sale, and willing to take poor years with the good.

There are many more points that I would like to touch, but I have taken too much space already.

Oneida, Ill., Jan. 15, '88.

21° below zero.

A swarm of bees was recently found (and taken) clustered on a stake in the Hudson river, 1500 feet from shore.

From the Bee-Keepers' Review.

Why?

A. C. MILLER.

Why do we keep bees? Why do we spend hours in the hot suushine bending over hives of angry bees? Why do we fuss and putter with sticky messes? Why do we saw and hammer, putty and paint, pounding our fingers and soiling our clothes, all for the sake of a few bees. What pleasure the bee master takes in aiding the weak colonies (O so many) and pushing the strong (O so few). What a pleasure to put on hundreds of snowy sections, carefully fitted with golden foundation, to be taken off a few weeks later so beautifully decorated with propolis and the foundation so nicely drawn out—of its place. What a thrill it sends through one to open a hive of golden belted amazons from fair Italy's sunny shores and find each maiden awaiting your arrival with polished darts of love (?). How thoughtful of them to *point* out each hole in one's garments. How kindly they escort one to the honey house and how patiently they wait to aid one from thence to the dwelling house. How impartial they are in their attentions, caressing the baby's cheek the mother's nose, and even the cat is not forgotten. How quickly they go to aid the neighbor trying to urge his sleepy horse along. How kindly and sweetly they hurry the tardy school boy onward. How *pointed* their reminder to the chickens that Dame Nature has forgotten some feathers. In fact they pay their respects to all creation. Why should we not love the bees?

Drownville, R. I., June 15, 1888.

From the American Bee Journal.

BEE-ESCAPE.

Plans for Making Bee-Escapes for Extracting-Room.

On page 77, Albert H. Lind asks how to make a bee-escape for his extracting room. In reply to the question, Dr. C. C. Miller, of Marengo, Ill., describe his plan as follows:

Bees will fly to the light, so it is important that there shall be no light

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admitted to the room except where the bees can escape. The place for escape may be a hole in the wall a foot square, or it may be a whole window. In either case, cover the whole of the aperture with wire cloth, and let the wire cloth be large enough to continue a foot or so above the aperture. Now if the whole thing be nailed down tight, of course no bee can get out; so some plan must be devised to make the upper part stand out from the outside wall, for you understand that the wire cloth is nailed on the outside, not the inside of the building.

At each side of the window nail a piece of common lath on the building so that the lower end shall come 1 or 2 inches below the upper boundary of the aperture, and let the lath extend upward as tar as the wire cloth goes. Now nail the wire cloth on the lath. It may be necessary to have a piece of lath midway between the two side pieces, so as to hold the wire cloth more firmly to its place. This makes an open space of ⅜ of an inch through which the bees can go up and fly off, but no bee will think of starting at the top to come in.

The sash must be taken out of the window, or if less light is needed the upper sash can be let down, and a cloth, no matter how thin, be hung over the sash inside. In this case the wire cloth need not cover the lower part of the window, but pains must be taken to make the window bee-tight.

For greater economy, mosquito-netting may be used for all but a foot or so of the upper part, and even that may be of mosquito-netting, but it is so apt to get out of order.

Mr. S. Burton, of Eureka, Ill., gives his method as follows:

To make a bee-escape, I take screen wire on the outside of the window frame, aud make a hole at the top corner of the window about two inches in diameter. Then make a tube of screen-wire about 5 inches long, to fit the hole in the screen; at the other end make about a half-inch hole, but none will enter. As they will go to the window to get in, there may be two or three such bee-escapes in the same window, if desired.

Rev. T. H. Dahl, of Stoughton, Wis., gives the following plan:

I will be glad to describe my own bee-escape, as it is an excellent one, and as far as I know it is the best yet in use. I would not part with it for fifty dollars, as it not only clears the honey-house of bees, but also of all other insects. It is used to a large extent among bee-keepers.

I use wire-cloth on the outside of all the windows in the room, and I fix it on so as to reach six or eight inches above the window.

I put it on in this way: I nail a piece of lath as long as the screen on each side of the window, and fasten the wire cloth on these pieces, and at the bottom of the window. There will then be an open space of ⅜ of an inch between the wall above the window and the wire cloth. Through this hole all the bees will escape, and none return, as the bees or other insects always try to get upward, and not downward.

It is better to darken all other windows but one, when you will get the bees out, and of course it is not necessary to put wire cloth on more than one window. By this "escape" I keep my honey-house entirely free from bees and flies during the whole summer.

Mr. Enoch Babb, of Herbst, Ind., writes as follows about his bee-escape:

I like my bee-escape very well, and ir is made as follows: It is a common window in a double frame, that is, one frame inside of the other. Make the outside frame large enough to receive the inside frame containing the window, which should be put in like any ordinary window in a dwelling. To raise or lower it, put in a small bolt through both frames in the centre between the bottom and the top, oval the outside of the inside frame a little, and the window swings around and around.

Work near the window, and all the bees that are carried in will soon fly and alight on the window, when, in a twinkling, the window can be turned inside out. In real hot weather raise

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or lower one window-sash, and put in a wire screen, or tack on mosquito bar to give ventilation.

From British Bee-Journal.

The Rev. L. L. Langstroth.

There is, perhaps, no man living to whom bee-keepers of the present day owe more than to the Rev. L. L. Langstroth, or, as he is termed by our American friends, "Father Langstroth." How often in the progress and development of a science or industry the pioneers, those who were amongst the first, and who worked the hardest, very soon became forgotten. It is so in bee-keeping; those who have done the most, and by their exertions have enabled many in the present day to become not only bee-keepers, but successful honey producers, are forgotten and ignored. But this is not all, for those who have benefited by others' brain efforts and experiences are frequently those who do their best to crush them. Do we not find repeatedly that claims are made to inventions and improvements without regard to what has been done before? Names of inventors, discoverers, and benefactors, are frequently forgotten in the eagerness to benefit at their expense. We might mention numbers of instances at the present day where inventions are used with but slight alteration, and the users deriving a pecuniary benefit, whilst tne originators, to whom the invention cost a large expenditure of brain power, many sleepless nights, and perhaps a large sum of money into the bargain, are completely ignored. We have a most striking instance of this in the case of the Rev. L. L. Langstroth. We do not wish to enter into the question of whether Langstroth, Munn, or any one else, was the first to invent the frame, but what we wish to point out is that Langstroth was the first to make the moveable frame hive a practical success, and by his work, *The Hive and Honey Bee* which is still the standard on the subject, he opened up to the world the improved methods of bee-culture, which have led to the enormous success witnessed at the present time. Does every bee-keeper realize that in using a moveable comb hive he is morally indebted to Mr. Langstroth for the benefit he is deriving from it? And if he does, is he prepared to make some acknowledgement and return for this obligation?

For many years Mr. Langstroth, who is now seventy-seven years of age, has suffered, and only from time to time, and at long intervals, has he been able to take up with his favorite pursuit. We regretted that when we visited America last summer he was not in a condition to see us, and nothing would have given us greater pleasure than to have grasped this veteran's hand and looked into his benevolent face. Ever devoted to the science he loves so well, according to a friendly letter we received from him a few days ago, he was even then, during a period of convalescense, at the apiary of Mr. Heddon studying the capabilities of the Heddon system. His head troubles have prevented him from earning his living, and it is because this master of bee-keepers has been robbed of his means of livelihood by some of those who have reaped the benefit of his labor, that he is not now, in his old age, in comfortable and independent circumstances. From time to time small sums have been subscribed, and in 1879 "The Langstroth Fund" was started in America. In that year Mr. Newman visited England, and at a meeting of British and Foreign Bee-keepers held at our residence in Horsham, a subscription was started which amounted to about 6*l.* 6*s.*, the whole amount collected here and in America barely reaching 40*l.* Since that time small sums have been remitted to him, but how out of all proportion is this to the benefits conferred by him on the world! It is now propose in America to raise a sum of money in order to purchase an annuity, and every bee-keeper there will have an opportunity to pay some tribute to his great leader.

But why should we stand aloof and do nothing? On another page our correspondent, "Amateur Expert," in his pathetic appeal, says, "Let us, as

British bee-keepers, give practical expression of brotherly feeling by subscribing to the fund; it will only stimulate his countrymen to do more, and make the annuity the greater." These sentiments we heartily approve, and think it the duty of the many who have benefitted by Mr. Langstroth's labor to do something on his behalf, so that this good old man may pass the remainder of his days in comfort, cherished by the thought that there are noble and honest minds on either side of the Atlantic that do appreciate his efforts, and prove a brotherly love and feeling are ready to recognize them. We shall be pleased to open a subscription list to be called the "Langstroth Fund," and earnestly hope that our appeal will be heartily responded to. Let us bear in mind that "he giveth twice who gives in a trice."

Donations sent to us, or to Mr. Huckle, Kings Langley, Herts, will be acknowledged in the *B. B. J.*, and forwarded to America. The list of contributions is headed :—

	£	s.	d.
T. W. Cowan	5	0	0
Geo. Neighbour & Sons.....	2	10	0
Rev. Geo. Raynor.....	1	1	0
W. Raitt, Blairgowrie.....	1	0	0
"Amateur Expert".....	0	10	0
Geo. Henderson.....	0	10	0

Read at the Ohio State Convention.

MARKETING HONEY.

The Commission Merchant and the Honey Trade.

BY CHAS. F. MUTH.

It is the object of bee-keepers' meetings to stimulate a friendly relation among bee-keepers and the friends of bee-keeping; to gather knowledge in the art of bee-keeping by a friendly exchange of ideas, and to advise as to the manner of disposing of our product to the best advantage.

Although millions of pounds of honey are produced annually, and in every part of the world, and thousands of people are interested in the pursuit, and hundreds of bee-papers and agricultural periodicals are spreading knowledge and enlightenment on the subject in every land and in every language, yet the public are still poorly posted as to the many beneficient qualities of honey. Honey is comparitively little known yet, even to the great majority of our nearest neighbors.

A great deal of this unfortunate ignorance is due to our selfishness. Not only do our Canadian brethren represent their own linden honey as far superior to our American bass-wood, but our American brethren also will mislead the consumer when his own interest conflicts with that of a rival bee-keeper.

Our great anxiety to change the name of "machine extracted" honey, for fear that consumers should translate a very proper name into an absurdity, such as "machine made," or as "manufactured" honey, shows a weak spot indeed. Our own knowledge that the honey is pure, and was extracted from the comb by a machine, needs only our positive assertion to be accepted by a sensible community. We may succeed slowly, but we shall succeed best, with a straight and fearless story. Let us, therefore, always call our honey by the proper name, and never be afraid to show it, granulated or liquid. Expose the adulterator, but do not look at your neighbor's honey with a suspicious smile.

The price of honey has been very low for a number of years—too low to satisfy producer or dealer—the same as all other products of the farm. Wheat at 70 cents per bushel is to our farmers no more satisfactory than 10 cents a pound for the best comb honey is to our bee-keepers, or 6 cents a pound for the best extracted clover, or 3 cents a pound for dark honey. But, what could be done under the circumstances? Could our farmers say, "We will keep our wheat till it brings a dollar a bushel?" Could bee-keepers form a "trust," or make a so called "corner," or elect a commission to stipulate the price at which honey should be sold? It takes a younger man than I am to indulge in such impractical ideas.

If a number of our sanguine bee-keepers could have only a part of our experience, they would know that comb honey sells fast when cheap, but

that it is almost impossible to dispose of a large lot if an advance of only a few cents per pound is added. They should not confound their own small home trade (even if their crop was 5,000 pounds or more) with the trade of dealers in large cities. They should know that the country is not saved, if only *they* have disposed of their crop at a good price.

There are two large dealers, one of them in New York, who, under the impulse of a "short crop," bought comb honey which they now offer at 2 cents per pound below cost. Such is not healthy business, and it will come back to the bee-keeper another season. Sanguine bee-keepers will be the cause if we have an over-production, a honey famine, and again an over-production all in the course of twelve months. This is within the range of possibilities in our country, where we occasionally slide from one extreme to another.

Comb honey will remain a luxury. It will sell fast when cheap enough, and though a good business can be done in it for the bee-keeper and dealers its production will be only of secondary consideration as compared with that of extracted honey. Since manufacturers make use of extracted honey, it bids fair to become a staple article; nothing will hinder it from becoming such, unless the prices put on will place it beyond the reach of manufacturers. Its prices will be controlled more or less by the prices of sugar syrup, which cannot be otherwise. Let us make due note of it.

The wish to obtain the highest market prices is the most natural with producers, and nobody is more deserving of that privilege than they are. Manufacturers know from their time of labor, which is worth a certain amount per day, and their cash outlay, how to determine the price of their goods. Farmers, gardeners, bee-keepers, and others, however, labor for uncounted hours; and when their prodect is marketed, they have to accept the prices that they can get. They determine nothing.

When times are flush, and demand is good, good prices are realized, and the reverse is the case when times are dull. Is it a wonder that a sort of anarchistic feeling creeps over the producers? Our condition should be bettered. There is no doubt about it. But how shall we proceed?

Farmers sell their wheat to their neighboring mills, to dealers (middlemen), or they ship it to the city. Whoever pays the best price is the buyer. Gardeners, bringing their produce to the city, sell it in the market as a general rule; but if they fail to dispose of it, they leave it with shippers (middlemen again) to dispose of it for them. These shippers have a custom among hotels and boarding-houses; other dealers ship to other places, and make a living in their own manner, benefiting themselves and others. Without these middlemen our gardeners would labor under great disadvantages. Our markets would be poor shows without the "huckster."

The same proportions holds good with bee-keepers. Honey-dealers are not only ornamental when occasion offers—for instance at fairs, exhibitions, etc.—but they are useful and indispensable to bee-keepers.

The dealer holds forth in a place handy to consumers and other dealers; makes himself acquainted with the wants of the public, and works up a demand, the like of which is just as impossible for the bee-keeper to do, as it is for the farmer to peddle out his own wheat among his neighbors. The dealer has facilities which the bee-keeper has not.

The truth of the proverb, "Every one to his own trade," has been displayed to me lately so well that the matter deserves to be mentioned in this connection. A party had offered to us his services as a salesman. Talking the matter over, he came to the conclusion that he would be a poor wholesaler, but that he would do better by buying the honey of us and selling it in his own manner, and on his own account. We had no objections.

He took a 50-pound can of honey on a passing street car, and went to the lower part of the city. Here he commenced to canvass, homeward, every

house. His can became lighter as he went on, and when he reached our neighborhood it was empty.

He took another 50-pound can, and canvassed another street in a similar manner, etc. In less than two weeks our friend and brother bee-keeper had sold 800 pounds of honey, and cleared $67. He told me that he sold his own honey in the same manner when at home. How many producers in a hundred could do like he did? This time you see he was a middle-man, useful to himself and others, and I had no reason to begrudge his large profits.

Middlemen are useful to all branches of industry, otherwise they would not be there. Large manufacturers would be lost without them. The prosperity of their business depends upon them to a great extent; otherwise they would not pay them high salaries or large commissions.

It is a lack of experience, or a sign of narrow-heartedness in a number of bee-keepers to consider the dealer a leech, instead of a benefactor—an opinion not shared, however, by the larger part of experienced bee-keepers.

In dull times, like the present, the bulk of the honey would remain unsold in the hands of bee-keepers, but for the unceasing industry of dealers, who take upon themselves responsibilities, invest their capital, and use their best endeavors for their own success and that of bee-keepers. Their interests are mutual, and their motto should be: "How can we best work and best agree?"

Cincinnati, Ohio.

Read at the Eastern New York Bee-Keepers' Association.

Honey Exhibitions at Fairs.

Ought bee-keepers to make honey exhibitions at our county and state fairs? I think they had, and I believe that here is a field that has been too much neglected. The great point to be gained is that thereby we can increase the home consumption of honey. The benefit the great cause of apiculture would receive from a judicious exhibition of honey at our fairs is that it gives us a chance to bring our honey in its different shapes and ways of putting up directly before a large number of consumers, with yourself behind the counter instead of the retailing grocer, who is often, I am sorry to say, not very friendly to our interest. It gives us a splendid chance to get right at the consumer, so to speak. We can disabuse their minds of the adulteration bugbear, and nail the "Wiley lie." How strange it is that this falsehood has secured such a hold on the minds of otherwise intelligent people. It seems impossible to convince a great many until you corner them right down with an offer of $1,000 for proof and samples. I tell you, brother bee-keepers, if you get up a nice exhibition of honey and wax with some of the implements necessary in the business and an observatory hive or two of bees, it has been my experience, that you will not be without an audience, questions will generally be asked you as fast as you can answer them, and I know a great deal of good can be done.

It also gives us an opportunity to see and talk with the old-fogy bee-keepers, those who keep but a few skeps of bees in log gums and nondescript hives, to try and induce them to have their honey made in neat sections, and not lower prices by offering for sale their unmarketable honey. Of course harm to our pursuit might result from an exhibition by persons given to too much bragging. Some conceited novice in the business might do injury by enlarging upon the number of tons of honey he thinks he can produce, and how soon he expects to become very wealthy, without giving as well the dark side of the business, when some severe winter he may loose from fifty to one hundred per cent. of his colonies, or the weather be such during the time of the honey flow that every pound of honey he receives he finds has cost him two dollars or more per pound, as has happened in a great many cases this past year. Now just here I want to say that I think a great dea of harm has come to our business by this boasting, and reports of phenomenal large honey yields, it not only induces others who have no natural qualifications into the business to increase

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the competition, but causes the consumer to think they ought to buy cheaper. It may be urged that by these exhibitions we will induce many not now in the business to embark in it. I think not. I believe the better way is to come right out square and let them see what we are doing. I have made exhibitions at the Saratoga County fairs for a number of years and have yet to hear of any one starting in the business as the result, but I know it has been the means of helping hundreds, I may say thousands, of pounds of honey out of the glutted city markets. I think, perhaps, you will agree with me that for the cause of apiculture exhibitions at fairs are desirable, but will it pay the persons making them for their time and the necessary expense? We might ask does bee-keeping pay? Does any business pay? The answer depends in a great measure on the individuals themselves. It may not pay directly the first year, but if advertising is worth anything it no doubt will, in the long run. If your fair managers offer no premiums, make a good display one or two years without and I think they will then, rather than lose this attractive feature. There is also a great advantage in being the first one to start anything like this.

Now, friends, if these few ideas that I have here advanced will result in increasing the home consumption of our honey, thereby helping to relieve the city markets, I shall feel repaid for all the labor I have given this paper.

Mr. Pond Criticised.

Mr. J. E. Pond should have risen earlier, his plan of introducing queens was given by Mr. H. H. Flick, October nunber '87 of the MAGAZINE, and *to him belongs the palm for this country*. Mr. Pond should try and let the queen run in from the back side, that would be a new idea of his, *á la* H—.

J. VICTOR ACHARD.

Our bees starting out lively this spring. Wintered fine, with no loss.

S. D. STARKEY.

Bellefonte, Ark.

Paper read by Mrs. Harrison before the Illinois Farmers' Institute, at Peoria.

Bees and their Relation to Agriculture and Horticulture.

Before approaching the subject proper of this paper, it may be well to preface it with a few remarks upon the natural history of the honey bee. "Honey bees can only flourish when associated in large numbers, as in a colony. In a solitary state a single bee is almost as helpless as a new-born child, being paralyzed by the chill of a cool summer night." On examining a strong colony in the hight of the honey season you will find

THREE KINDS OF BEES.

1st, one of a peculiar shape, having a longer abdomen than the rest; this is the queen or mother bee, she being the mother of the whole colony. 2d, several hundreds of large bees, called drones; these are the males. 3d, many thousands of a smaller kind, called workers, or the common bees, such as are seen on the flowers. Many of the cells will be found to contain honey and bee bread or pollen, and vast numbers of eggs, and immature workers and drones; and if near the swarming point, a few cells of unusual size, devoted to the rearing of young queens. Of the substances found in a hive, there is wax, a fatty secretion of bees, of which the combs are built; bee-bread, or the pollen of flowers; honey; and propolis, or bee-glue, which the bees gather from the resinous plants and flowers. The queen bee is the only perfect female in the hive, and all the eggs are laid by her, which is the only duty she is expected to perform. The drones are the males; their office is to impregnate the queen, hover the young brood, and assist in the capping of the honey cells. The last point has been disputed, but careful observation has satisfied me of its correctness. *The workers are females*, whose ovaries are not sufficiently developed to enable them to lay eggs, but who retain the female instinct to care for the young brood. The time required for the reproduction of bees from the eggs is twenty-one days for the worker, twenty-

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four for the drone, and sixteen for the queen. A low temperture in the hive retards the development of brood, and a high one facilitates it. A good strong colony of bees in the working season will number about twenty thousand. The natural instinct of the bee is to gather liquid sweets; and this instinct is so strong that it cannot resist the temptation under any circumstances when an opportunity presents itself. And in carrying out this instinct of nature, given to it for a wise and beneficent purpose, there comes incidentally the fertilization of fruits and flowers.

FERTILIZATION BY BEES.

For the value of the United States hay and grass crop, $1,200,000,000 is probably not a large estimate. When we consider that the clover, of which there are forty native species in this country; the common Red Clover, so valuable and nutritious for hay and pasturage; the White or Dutch, frequently a considerable addition to the hay crop, and very valuable for pasturage in conjunction with blue grass, thriving well in the shade; the Alsike or Sweedish Clover (*Trifolium hybrida*), so valuable for both hay and pasture; the Southern Clover (*Trifolium Carolinianum*) valuable for pasture; the (*Trifolium Involuratum*), an annual; the Japan Clover (*Lespedeza striata,*) which has been tried with gratifying results in the South; when we consider that these furnish at least one-fourth (perhaps one-third) of our hay crop and pasture grass, and that they are all, except the red clover (and that in conjunction with the bumble bee), dependent on the honey bee for the fertilization of their flowers, and consequent production of seed, we see something of the value of this wonderful little insect, in the economy of nature. There are upwards of 5,000,000 farms in this country which, with an average of six colonies of bees per farm; and an average yield of forty pounds per colony, would give 1,200,000,000 pounds of the purest and most healthful sweet known to man. By this we see something of the possibilities of apiculture in connection with agriculture. Every horticulturist, every orchardist, nearly every fruit grower, knows that among the blossoms on our fruit trees and vines, are many imperfect flowers, and particularly among strawberries, many having only pistillate bloom. Also that for fertilization insects are required; as the stigmas are ripe before the pollen is produced, bees walking over the bloom, seeking honey, carry pollen to the stigmas. In the apple bloom the stigma comes to maturity before the anthers, and bees passing from bloom to bloom carry pollen from the older to the younger, and secure fertilization, without which no apple could be produced.

It is not my intention (it would not be possible in this brief paper) to enumerate the many beneficent works of this most useful insect, "Who acts as marriage priest to a thousand flowers," but to only touch upon a few prominent points. Those who have never given time or thought to this subject, are referred to those classics, Langstroth on the "Hive and Honey Bee," and Darwin's "Forms of Flowers." Observant horticulturists have estimated that our fruit crop is increased one-third by the cross fertilization of flowers by the honey bees. Bees never injure *sound* fruit. In the vineyard where grapes are pecked by birds, stung by wasps, or choked by rains, the bee comes in as a scavenger, to gather up and utilize what would otherwise be lost. If the bee could puncture sound fruit, and its instincts led it to do it once, it would do it continuously.

And now in conclusion, my agricultural and horticultural friends, remember that the busy little bee is your friend and co-worker. She is trebly a benefactor, she causeth many "blades of grass (I use the term in its broadest sense) to grow, where none grew before;" she multiplieth your fruits, she gathereth the richest of nectar to tickle our palates and soothe our lungs; she toileth early and late; and at the close of her brief but useful life she asketh neither grave nor monument. Let a grateful people write her obituary.

Now, is "the accepted time" with bees.

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How Bees Make Cells.

In *Murray's Magazine* we find the following explanation of the geometrical forms which the cells of the honey-comb assume: Recent measurements and observations have tended to dissipate the cell myth, and to show not only that honey-comb is far from regular, but that such regularity as it has is due merely to mechanical conditions.

Mr. Frank Cheshire tells us in his recent volume, that careful measurements of the finest pieces of comb, built with every advantage for securing regularity, show that so far from every cell being geometrically accurate, it is difficult to find a hexagon presenting errors of less than three or four degrees in its angles. On the other hand there is a growing tendency to accept a modification of Buffon's explanation of the origin of cell structure. Buffon attributed the regularity of the cells to mutual pressure; in illustration whereof he packed a closed vessel with dried peas and filled up the interstices with water. The peas, which were thus caused to swell, assumed, under the pressure which resulted, the form of more or less accurate geometrical figures.

Perhaps a still better illustration of this principle of mutual inter-action is seen in soap bubbles. If a little soapy water is placed in the bottom of a tumbler and air be blown into the water through a tube until the upper part of the glass is full of bubbles, the hexagonal which these bubbles assume under mutual pressure, and the trilateral pyramids at their bases, will be readily seen. Not that these geometrical figures are the same as those which the wax assumes, but they illustrate the principle. For, at the temperature of the hives, the wax, pared thin by the smooth-edged jaws of the workers, has all the plasticity of a fluid membrane. The bee has indeed to avoid the paring away to far, and thus making a hole through the wall. But even here it may be aided by mechanical conditions.

If we take a thin piece of soap and pare away one face with the blade of a pocket-knife, we shall soon form a transparent patch where the soap is very thin. But if we continue to pare we do not cut through the soap at this point; but for a time at least, we merely enlarge the area of the transparent patch. The thin film of soap yields at this point, and the stress of the blade falls on thicker and less yielding edges. Some such mechanical yielding of the wax may guide the bee in its work.

From the Prairie Farmer.

Bee-Keeping as a Specialty.

MRS. HARRISON.

The question whether it is better for bee-keepers to make a specialty of their work or not, has been on the tapis for discusion in bee periodicals and at Conventions lately. The almost entire failure of the honey crop throughout the country has caused a distrust in the minds of some, as to whether the busy bee can be depended upon as a means of livelihood. Some think it is better to have all their eggs in one basket, for if they have too many irons in the fire, a part of them will surely burn. This failure of the honey crop has been a good thing in many ways for bee-keepers. Those who had a supply on hand are able to dispose of it readily, at double last year's price. All undesirable stock has been worked off, and the country will be clear of honey before another season. At first thought small-fruit growing and bee-keeping might work nicely together, but on consideration we see that the busy seasons of both come together. When the fruit is ripening, and needs to be gathered and marketed, the bees are swarming and the surplus boxes must be put in the hives.

Poultry and bees would work armirably together, if managed as a Vineland, New Jersey, horticulturist does. He sets his hens very early, so the pullets will be old enough to lay the following fall. When the chicks are old enough to do without the mother, the hens are all sold. It is little work to feed them during warm weather, and when they commence laying in the fall he has leisure to provide good

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warm quarters, and the necessary egg food, so they will lay when eggs command a good price.

Winter-dairying and bee-keeping might join hands; they certainly should be friends, for where would the dairyman be without the busy bees? A farmer once complained that a neighbor's bees robbed his cows by taking away the sweet from the heads, and yet he was in debt to the bees for the clover. The Indians call White Clover the "white man's tracks," better the "bees' companion," for when bees are introduced into a neighborhood, the modest heads of the White Clover are soon nodding in the breeze. A bee-keeper of Evanston lately said to the writer that when he commenced keeping bees, there was very little white clover there; now it is spreading everywhere.

Teaching and bee-keeping are agreeably suited to each other, for one needs the other. The teacher needs the quieting influence of fresh air and sunshine, the humming of insects amid nature's surroundings. During the busiest season in the apiary, teachers have their vacation, and are are at liberty to spend all their time amid the busy workers.

Read at N. Y. State Convention.

How Can We Increase the Demand for Honey and Maintain Present Prices?

L. C. ROOT.

Those who have carefully read the various bee journals during the past year have observed the unusual interest which has been manifested in regard to the disposition of our products at remunerative prices. I have many times expressed the opinion before this body that far too much thought was being given in the direction of producing large quantities of honey and too little to the better quality and proper disposition of the same. I have so often expressed my views upon this subject, that I shall offer but few suggestions. Enough has been said, and practical plans enough have been offered to entirely revolutionize the system of marketing. To tell the exact truth, we have had too much talk, followed by far too little action. The great needs at present may be briefly stated as follows:

First, to attain to a higher standard in the production of our honey. This will be reached through the great freedom of discussion which is taking place in all our bee literature. I am a thorough advocate of the "question and answer department" of our papers, where we are enabled to compare the opinions of so many of our best bee-keepers, expressed in so concise and explicit a manner. We should remember that anything tending to educate in the direction of raising the quality of our honey to a higher standard is exactly in line with creating and strengthening a better market. Our first aim should be a prime quality, and next complete and perfect finish so that it shall be attractive and agreeable to handle. All of this means proper fall management and winter work; successful wintering, and proper spring management; so that stocks shall be populous and in condition to store honey rapidly, which aids its neat appearance. In short, it means all the year round, *hard work.*

Second, we need to guard and foster most strenuously the fact that our product is a pure and wholesome article of food. In fact, the only commercial sweet, furnished entirely from natural sources, that has undergone no process of manufacture. It is as wholly and truly as natural a production as milk, and has ranked with it in all ages past.

Third. We now come to the point where we need a reformation. We talk much about "developing a home market," "creating a greater demand for our honey," "making proper exhibits at our fairs," etc., but we fail to practice what we advocate. In my opinion, one of the very greatest needs in the direction of solving the problem you have asked me to consider is an entire revolution in our system of marketing. Our wares should be handled in every large and important market, by those who are thoroughly informed in every branch of bee culture.

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This society has talked, and made some effort in the right direction, but it has failed to put its practical suggestions and plans into successful operation. Those who handle our products should be directly concerned in the best interests of producer and consumer, and should command the confidence of all. As John Aspinwall recently said, in discussing this question. "it is simply a question of supply and demand."

What we lack is thorough organization. No great undertaking is successfully carried on without it. We should have our "North American Association working in a broad and generous way, in harmony with like societies throughout the entire world. We should also have our State and provincial organizations, which should be represented at the general convention by delegates; each State should be thoroughly organized and send its delegates from town to county and from county to State. This would insure concentrated effort. The whole body of bee-keepers would in this way act more as a unit, and in unity there is strength. We only need concentrated action to open up new avenues for the use of our products, and to awaken a fuller appreciation of the character of honey and its value for food, medicine, confectionery, and other manufacturing purposes, and a general commercial sweet. I think my experience will warrant me in saying that the best investment bee-keepers could possibly make would be to create a fund ample enough to command the services of some person fully competent who should give his entire time to the development of this very important branch of their business. If this systematic organization could be effected, the necessary tax on the individual bee-keeper would be very slight, and would bring a hundred fold return. I feel certain that the results of judicious action in this direction would more than equal our expectations.

It is always well to wear a veil in handling bees, as the eyes are too valuable members to run the risk of losing.

Beginners' Department.

MOTTO—"Courage and Perseverance."

ARTIFICIAL SWARMING means dividing the colony so as to make two. As a rule, our advice to beginners is to let artificial swarming alone. For this reason in nine cases out of ten the beginner will divide his colonies to death. In Laystroth's work the author says that with judicious care, a colony could be multiplied, by dividing, so as to make ten colonies by fall. The writer of this article tried it, when first handling bees, with this beautiful result. In the bright sunshine of spring there stood in a row ten empty hives and there was a burying bee, where queens and their attendants were sadly dropped into a hole in the ground. It is better than to let the bees tell you when they are ready to leave.

A *queen* is raised in a queen cell, which looks for all the world like a peanut. I know of no better description of their appearance. When these peanuts appear, look out for swarms. Once a week is often enough to look at your colonies. If you desire to look at them more frequently, reserve one colony for that purpose. In fact it is a good plan for the beginner to keep one colony to use for experimental purposes. By looking at the colony frequently he becomes thoroughly familiar with their habits, and knowing these habits thoroughly is a great help in obtaining a satisfactory yield of honey.

Many apiarists practice clipping one wing of the queen, thus preventing her flying away when the swarm leaves the hive. The plan is not a bad one particularly where there are no low trees in the neighborhood of the hives.

The grass about the apiary should be kept short and a good plan is to place a board twelve inches wide and two feet long, on the ground in front of the entrance for the purpose of keeping the grass down and the entrance clear of all obstructions. A bee when ladened with honey wants nothing to obstruct his entrance to the hive. Many beginners ask themselves the question: "When is the time to put on the su-

pers?' Our answer has always been: "It depends on the colony and the honey flow." When you see a strong colony working like mad, ten to fifteen bees rushing out and flying off to the fields and as many rustling into the entrance in hot haste, you may make up your mind honey is coming in rapidly. If in removing your enamel cloth from off the brood frames you see signs of new comb being built you may conclude it safe to put on your sections.

Sections are placed in clamps, wide frames or racks. The first have a screw to squeeze the sections together, the second or frames like the brood frames but made as wide as the section. As a rule eight one pound sections go in a wide frame. In a rack the sections are supported in section holders holding three or four sections in a row and have no clamp. Each variety of super has its advocates, and in all of them bees store honey with equal readiness, the real question being which form of super seem to us to handle the sections the easiest.

Tiering up, or as the English apiarist call it, storifying, is placing one rack of sections on top of the other. The first set of sections are placed on the hive and when nearly full are raised and an empty set placed under them. The object in doing so is this: Honey when stored by the flowers is called *nectar* by aparists, to distinguish it from the sweet when ready for the market. This nectar is green, almost as thin as water, and of a greenish tinge, and sometimes called honey. After being placed in the combs it evaporates and becomes the delicious substance we all love to eat. This process of evaporation is known as *ripening* and the result is called honey, or ripe honey. The extractor is a round tin vessel, say thirty inches in diameter and three feet high, which has at the bottom a faucet or honey gate, fastened to an upright rod resting on the center of the bottom of this can is what is called a basket made of wire. Its shape is square, being longer than wide, and its side made of wire gauze. When it is desired to extract honey a comb, having the cappings of the cells shaved off with a HONEY KNIFE, is placed in the basket, and by the aid of suitable gearing the the latter is made to revolve rapidly. After ten or fifteen revolutions all the honey on the side of the comb facing outwards will be found to have been thrown out of the cells on to the sides of the extractor where it gradually runs down to fill the space in the can below the basket, the force which causes a stone to fly from you when you swing it around on the end of a string and let go, is the force which acts on the honey. The comb would like to follow the course of the honey but is held in place by the wire basket. This is nicely illustrated by taking a sponge filled with water so it will not drip, tying it to a string and whirling it. You will find that the water readily flies out, while the sponge remain. This force is called centrifugal. The inventor of the extractor has recently died. His name was Van Hurschka, and all honor be given him for one of the great inventions connected with bee-keeping.

Scientific * Department.

From the British Bee Journal.

THE MEDICINAL PROPERTIES OF HONEY.

R. A. H. GRIMSHAW.

We should like to inquire into the reasons why or in what respect honey is a medicine, supposing we take it as admitted that such is the case, an assumption many medical men might object to, seeing that the position of honey in the British Pharmacopœia is such a very modest one, its use being chiefly that of a vehicle for other medicines, and as an adjunct to gargles. I should say that children in the stages requiring *Mel boracis* receive the greatest share of the officinal preparations of honey. True, oxymel (a mixture of honey, acetic acid, and water) is used as a demulcent, softening mucus lodging in the air-passages and facilitating its expectoration. In my own household, however, I prefer the use of citric acid to acetic. In bronchitis, honey pure and simple is always at hand, and

more relief is obtained by frequently tasting it than from anything else. Nearly twenty years ago I found the greatest benefit in an attack of quinsy by using a gargle of red sage, acidulated with vinegar, and well sweetened with honey. Honey *ad libitum* as a laxative, and mixed with borax for thrush, is, of course, a common household medicine for children. We will leave out of our view the value of honey as a food, as a heat-producer, consisting, as it does principally, of carbon and water, the two sugars dextrose and levulose, invert sugar. We know it is readily assimilated in the stomach, and should be eaten with some attenuating substance such as bread.

Mr. Cheshire, in "Honey as Food," tells us "Why honey has a curative effect it is difficult to say for certain, but one may theorise, and ascribe this fact to the readiness with which it combines with mucous tissue. Honey is variable, and therefore its value as a medicine cannot always be the same."

In "Honey, as Food and Medicine," we have a list of prescriptions which are almost incredulously efficacious, a few of which may be named as startlers: Inflammation and congestion of the lungs followed by unconsciousness were cured by eating honey at all times of the day and night until ten pounds were consumed. Herr Karl Gatter was at the verge of the grave, and was restored to perfect health by the use of honey. Consumption is cured by it, and in ancient times it was used as a means of securing long life, and it is said to be an excellent remedy in diseases of the bladder and kidneys. The receipes are: For asthma, honey of squills, honey cough syrup, eye-wash, balsam of honey, for croup, for bronchitis, honey salve, for coughs, colds, whooping coughs, etc., honey-wash for the eyes, gargle for sore throat, cancer plaster, honey cough medicine, honey and tar cough candy, honey for sore eyes, honey and walnut cough candy, remedy for whooping cough, colds, etc.

Granting that all these prescriptions are good and effectual, what is there about honey that is absent in sugar which brings about such apparently wonderful results? It is in this direction we will turn our gaze. We know the effect produced upon the nerves at the roots of our teeth by briging them into contact with fresh honey, strong in acid, and it may be that the excess of formic acid secreted by the bee is used by it in giving its honey this strong acid reaction. Indeed, it is not beyond the bounds of reason to suppose that the supply of this acid to the bee is not intended for use so much as sting poison as for purely domestic purposes. There is not much doubt that the acid contained in honey is beneficial to both stomach and liver. What else is there in honey? Well, myriads of pollen-grains, and these contain chemical principles of undoubted medical potency. Putting aside the husks (the extine and intine of the pollen-grain) the outermost skin is found to be reticulated with ridges, the seat of a secretion of sticky oil. The contents are a sticky fluid rich in protoplasm, sometimes transparent, sometimes opaque, by reason of floating granules (fovilla), which granules are declared by Herapath to contain as much as forty-six per cent of a peculiar inflammable *azotized* (?) principle insoluble in nearly every liquid. I imagine it is soluble by gastric juice. These granules were found to be invisible in many fresh pollens, since the fluid in which they swim has the same refractive power as the granules; some of them are drops of oil, wilst others consist of proteine compounds. Many pollen tubes will develop in nectar, by osmose of water, and produce in their own tubes other chemical combinations, and as the growth of these tubes often exceeds the diameter of the pollen grain by a hundred diameters, their chemical positions in the honey must be somewhat considerable. We have then (leaving the sugar of honey on one side) to deal with formic acid and the protoplasmic contents of pollen-cells, when we think of honey as a medicine. The most important factor, in my opinion, remains yet to be considered. I allude to its flavor. Mr. Otto Hehner tells us "he has not been able by chemical means to distinguish between honey from one kind of a

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flower and any other." We must all admit that such a difference exists. We know that honey collected from poisonous plants is materially affected by the active deleterious or objectionable or medicinable principle, secreted by such plant, the rhododendron family, azaleas and kalmias being an instance of this. Does it not follow, as nectar is a secretion and an exudation of the plant cell, that it is charged and pervaded by the active principle, beneficial or otherwise, of the plant? Many instances of the identity of the nectar flavor, and the distinguishing principle of the plant which secretes it, can be given :

Citric acid is found in fruits and flowers of the orange tribe.
Tartaric acid is found in grape juice.
Malic acid is found in the apple, gooseberry, etc.
Tannic acid is found in the oak, etc.
Hydrocyanic (prussic) is found in the cherry laurel.
Oxalic acid is found in sorrel and rhubarb.
Galic acid is found in all kinds of galls.

Of poisonous principles we find alkaloids of

Quinine in cinchona.
Morphine in opium.
Solanine in plants of the potato tribe.
Veratine in sebadilla.
Aconotine in monkshood and aconites.
Strychnine in nux vomica.
Atropine in belladona.
Piperine in pepper.
Thiene or caffeine in tea and coffee.

Some of the most poisonous plants bear the gaudiest flowers, and such we know are peculiarly attractive to bees, whilst many plants unwholesome as food are invaluable as medicine. Most of the umbelliferæ are poisonous, the same may be said of the ranunculaceæ, *e. g.*, anemone, pulsatilla, delphinium, moonkshood, aconitum vulgare. The poppy family, papaveraceæ, are notorious (P. somniferum). The crucifers are, however, non-poisonous. When we come to the violet family we find one of our most valuable medicines (ipecacuanha), obtained from the root of a violet grown in Peru. The buckthorn (rhamnus) gives us a valuable medicinal fruit; from the spindle tree family we get the valuable active principle euonymine. The seeds of the laburnum are poisonous. The cherry tribe (containing the almond, peach, nectarine, etc.) yield us prussic acid, this acid is also secreted by plants of the plum tribe. A common plant (fool's parsley), common in gardens, is poisonous, as are generally the umbelliferæ, wet places being their home as a rule, when this principle is developed. Wild lettuce and wild celery are poisonous, whilst most members of the compositæ are medicinal. It is curious also to note that the ling or heather (the source of so much fine honey), has in its family the azaleas, kalmias, etc. The periwinkle (vinca) family have amongst them the nux vomica, from which we extract strychnine, a deadly poison, but at the same time the most valuable tonic in the Pharmacopeia.

Entire plants are wild lettuce (Lactucin, similar to Manna).

The following are the parts of plants used in medical prepartion :

Twigs and Tops	Savin	(Savin oil).
	Broom tops	(Scoparin).
	Woody nightshade	(Solania, an alkaloid).
	From	*Is obtained.*
Flowers	The Lavender.	Oil of lavender.
	The Hop	Lupulin and humulin
	Peppermint	A volatile oil.
	Camomile	A volatile oil (Oleum Anthemidis).
	Orange Flowers	(Oleum Anthemidis).
	Crocus	Saffron.
	Rosemary	A volatile oil.
	The poppy	"
	Elder	"
Buds	Santonica (worm-seed)	Santonin, and a volatile oil seed.
Barks	Larch	Resin, Tannic acid and Larixinic acid, crystal and volatile.
	Mezereon	A volatile oil.
	Oak	Tannic acid.
	Elm	"
Leaves	Monkshood	Anconitia (A).
	Deadly nightshade	Atropia (A).
	Hemlock	Conia (A) and a volatile oil.
	Foxglove	Digitalin (A).
	Henbane	Hyoscyamia (A).
	Cherry laurel.	Prussic acid and a volatile oil.
	Stramony l'v's.	Daturia (A).
	Bearberry	Tannic, gallic acids, and volatile oil.

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Roots	Monkshood	Aconitia (see leaves also).
	Deadly nightshade	Atropia (see leaves).
	Colchicum	Colchicia (A).
	Gentians	Gentianite, a bitter principle.
	Dandelion	A bitter crystalline substance Taraxacin
Fruits	Dill	Volatile oil.
	Anise	"
	Carraway	"
	Coriander	"
	Fennel	"
	Hemlock	Conia (A) see leaves.
	Poppy	Opium from which Morphia.
Seeds	Colchicum	Colchicia(A) see roots.
	Mustard	Myronic acid and a volatile oil.
	Stramony	Daturia (A) see leaves.

When we come to examine these products of the plant, from its very summit to its roots, taking leaves, bark, flowers, fruit seeds, on the way, we find what we may call the characteristic or active principle of the plant pervading its whole system, but appearing in a stronger form in some particular place. We must try to think of the plant as a simple aggregation of units, a mass of single cells, each of which is a laboratory in itself, forming of itself simple and complex compounds which it passes forward to its neighbors in order that they may be thereby further perfected, and finally stored away for future use by the plant or utilized by it as protective, resisting the attacks of birds, insects and other animals, or else rendering the plant attractive to the particular animal whose services are desired. Now the aroma of the plant is generally characteristic of its active principle, and this aroma appears in the nectar. The nectar owes its saccharine matter to the starch secreted by the single plant-cell from the carbonic acid of the atmosphere which it transforms into sugar and flavors with its active principle. The sweet-scented sap exudes or transudes through the uttermost cells and appears as a degradation product in a similar fashion to resins and gums.

We find most active principles medicinal when taken in small doses, but distinctly poisonous in larger quantities, and again many of them are antidotal when taken together. Herein is a beautiful provision of nature exemplified in the minute quantities of medicinal matter gathered by the bee, and so mixed in its storehouse that strong doses are rendered almost impossible and innocuous. The human system, however, when out of order (and it rarely, if ever, is in perfect health) has the faculty of sympathetically seizing hold of what it requires from the food to restore it to its normal state. Honey thus supplies us with numerous powerful agents in restoring to health disordered vital functions. I hold that the mixed honey, for these very reasons, is the healthiest and best for general use; that which bears distinct and pronounced flavor, at once betraying its origin, only so betrays it because it holds an undue proportion of the active principle of that plant whence gathered, be this beneficial or otherwise; and when honey is found to disagree with any one, it will probably be found to be honey of a distinct flavor.

We also loose sight of the fact when eating section honey that we swallow the waxen cell-wall which we are told is varnished over with a preparation (a sort of furniture polish) of the acid saliva of the bee and propolis—propolis consisting of powerfully medicinal exudations varying with the sources from which it is gathered. Much that I have said is ideal and theoretical, but I think my conclusions are rational and practical, viz., that in dealing with honey we are dealing with a medium—nectar—flavored with powerful medical compounds whose harmlessness is ensured by the wonderful antidotal mixing of the bee, but the beneficial properties are still present, ready to be seized upon by diseased or disordered organs, and if there be anything in the science of homœopathic medicine, the curing of disease by minute infinitesimal doses of such powerful drugs as produce *symptoms* of the disease in larger doses, then a new line of thought is opened up and considerable support given to my hypothesis.

Horsforth, Leeds.

Four stakes driven in the ground and sticking up four inches make a good stand for a hive.

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Extracted Honey.

The following is an abstract of a paper by R. F. Holtermann, of Bradford, Canada, on "Extracted Honey:"

When a paper subject to be chosen by myself is assigned to me it must be the expectation that those present at your meeting are not experts, or that the discussion which follows may bring out information of value to members present and others who read the reports of the convention in the bee papers. In my experience, and the experience of the Germans in particular, shade and ventilation form no mean factor in securing a good honey crop. At the present time where the price of a colony in spring is no more than the price of the hive, its combs, and the number of pounds of stores required to winter a colony, to winter successfully and sell is no gain, and to lose a colony is a loss of the value of the stores given for winter purposes. Therefore every pound of honey we lose through increase beyond what is absolutely necessary is mismanagement. What we most aim at is to manage our apiary in such a way that increase will be prevented by employing methods which will not diminish the honey yield. Now there are methods recommended, and particularly so amongst beginners, which I hold all a positive waste of time and an injury to the colony. To break down queen cells to prevent swarming is such a waste, to use perforated metal for this purpose is also a waste of time and material; and I incline to the opinion that to resort to any method to prevent swarming after the bees have received the impulse is also worthless, but would not be positive about the latter and leave the question with the convention. What must we then aim at to prevent swarming, and how does it influence our honey yield? Prevent the very first step, namely, the impulse. How shall we do this? By shade and ventilation. I have at present trees of such a hight and trained that the morning and late afternoon sun can strike the hive, and but little if any of the hot midday sun. I have ventilators in some of the bottom boards, and the lids of the hives are raised at the back to permit a current of air passing over the quilt which lies upon the combs. I want a shade board upon every hive, which shall be used with discretion. The ground is covered with grass, carefully kept from growing sufficiently long to prevent ventilation at the entrance; earth and sand cause more radiation, especially the latter, and are very trying on man and bee. All things considered—and I have had several years' experience with it—I want no high board fence to exclude every current of air from the yard. Then I find if a colony is left beyond a certain stage without supers to store honey and receives, even though not yet indicated, the swarming impulse, giving of room will generally not check this impulse, but they will swarm before filling such a super, and this must be carefully avoided. Give room as required. This can be done more easily whilst working for extracted honey than comb. I use the eight-frame Langstroth and with good colonies, and during a good flow use two full supers, allowing honey always to ripen or be capped. The first super is raised and the second put between it and the brood chamber. I use perforated metal; care should be taken to have a bee space on both sides of the board. Colonies not so good extract four combs out of the super, leaving the remainder until ready, when they are extracted, leaving the first four and so on. In this way I have had very good success in preventing much increase and securing a larger yield per colony than my neighbors. Last summer my strongest colony gave me 270 pounds of honey with no attempt. I have thus far handled 25,000 pounds and know what a vast difference there is in honey properly and improperly taken.

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BEE-KEEPERS' MAGAZINE,
Barrytown, N. Y.

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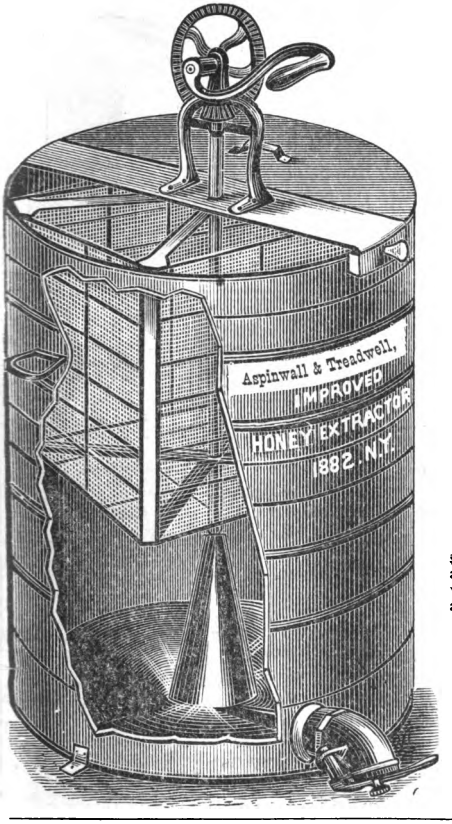

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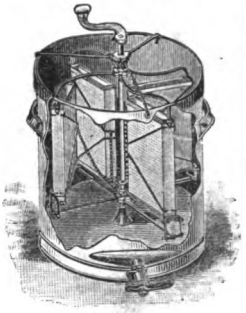

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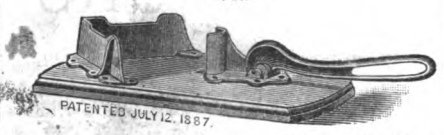

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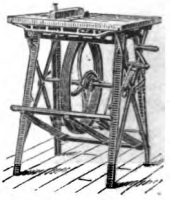

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Vol. XVI. AUGUST. 1888. No. 8.

THE BEE-KEEPERS' MAGAZINE.

Devoted to Bee Culture

JOHN ASPINWALL,
EDITOR AND PROPRIETOR,
BARRYTOWN-ON-HUDSON,
NEW YORK.

H. Gilmour, Inc. N.Y.

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THE BEE-KEEPERS' MAGAZINE.

50 CENTS PER YEAR.

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BARRYTOWN-ON-HUDSON,
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BARRYTOWN, AUGUST, 1888.

EDITORIALS, &c.

INSTRUCTIONS TO CORRESPONDENTS.

Correspondents writing matter for publication will confer a favor on the editor by writing on only one side of the paper, and giving their full name and address. The latter will be given in the MAGAZINE, unless there is a request to the contrary. Kindly write matter for the MAGAZINE on a separate sheet from business communications, so that we may not have to mutilate business letters to get at the literary matter. Rejected manuscript cannot be returned unless stamps are forwarded for that purpose.

THE YEAR'S YIELD AND THE HOME MARKET.

If this year does not bring a good honey yield it will greatly discourage the professional bee-keeper. We have had two poor years, and should we have another, it would be a serious blow to many. Of course in certain parts of New York State the yield last year was above the average, but take the crop throughout the country and it was very light. It behooves all bee-keepers, who go into it to make money, to work up their home market. We have always contended, and do still assert, that the home market is *the* market for the general bee-keeper. Stuff your home market with honey and send the balance to the commission man. By crowding the latter with honey you accomplish two things, 1st, ruin your home market; 2d, ruin the general market. Why? Because the local dealer will look in the *American Grocer*, or some other trade periodical, and take his quotations from an overcrowded city market.

WE note, as we go to press, that Mr. Newman, of the *American Bee Journal*, denies having called the putters up of glucose and honey, honorable men. We have no time or space to make a suitable reply until the next number, but we wish to assure brother Newman that we are trying to work for the interest of the bee-keepers of America and intend to do so by the path of honesty and truth, and we can also assure him if we have misrepresented him we shall only be too glad to set ourselves right, and we are neither afraid, or ashamed, to publicly beg his pardon if we find ourselves in error.

WE note in one of our contemporaries that a man announces his success in making foundation with cell walls as high as natural comb. We should like to see some.

REV. L. L. LANGSTROTH'S ADDRESS.

A reader has kindly brought to our notice an error in July MAGAZINE. Mr. Langstroth's address is given as Dayton, Illinois, when it should be Dayton, *Ohio*. We have written the postmaster at Dayton, Ill., to forward to correct address any letters for Mr. Langstroth.

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For the Bee-Keepers' Magazine.

MOLLY HEATH'S VENTURE.

A Serial Story.

BY JULIA ALLYN.

PART THIRD.

(Continued.)

In our life's history, often year after year passes with scarcely a ripple of change to make us note the progress of time. Then again comes some fortunate or baleful circumstance which changes the whole aspect of affairs and makes life of new importance, and we feel that a new era existence has been opened before us.

The death of Molly's father had cast a burden of responsibility on Molly and her mother which the flight of years had seemed to increase. The "Bee Lecture" was to prove a milestone or turning point in the Heath family's fortune. At the close of the lecture Rev. Edward Pierson, the young Episcopal clergyman, had presented to Mrs. Heath a Mr. Dyer, a middle-aged gentleman of fine appearance, who was intending to remain in Marston during the winter. After a short general conversation Mr. Dyer informed Mrs. Heath that he was formerly a college classmate of her husband's, and had been extremely interested in Rob's presentation of the subject of apiculture. Quite a lively and confidential chat ensued, and as Mr. Dyer was curious to know how this subject had come to interest the children, Mrs. Heath had confided to him Molly's repugnance to school teaching, and her hope that in bee-keeping the family funds might be increased, and how encouraged they were with their first year's experience. Mr. Dyer listened attentively, but said no more upon the subject then, but asked permission to call at Rosecroft, a request which Mrs. Heath cordially granted, saying that, as a former friend of her husband, she hoped he would visit them often during his stay in Marston.

The acquaintance formed at the "lecture" ripened into warm friendship as the weeks went by. On one occasion the conversation turning to the subject of how he came to visit Marston, Mr. Dyer informed Mrs. Heath that he had but recently returned from California, having gone to that distant State, soon after his graduation, and that now he had come back to his former home and was looking up old friends. Tracing his former classmate and correspondent to Marston, he had experienced quite a shock at the news of his death, but at the sight of Rob, whose close resemblance to his father brought up olden-time memories, the days of his college life returned with new vividness before him. Then the subject of university life being brought forward, Mrs. Heath said that in two years Rob hoped to be through his high school studies and wanted very much to go to college. Mr. Dyer then informed Mrs. Heath that her husband had materially assisted him when he had first started in business and one object in coming East had been to see if he could in some way return the favor of the past, and he hoped he might be permitted to send Rob to a university and pay for his four years' course. For Tom, too, Mr. Dyer had plans. Observing his skill in drawing, he proposed that after a couple more years of study he should enter the office of a prominent architect in Marston and take a thorough course in civil engineering. These plans were confided only to Mrs. Heath and Molly, as he wanted the boys for the present to learn to depend upon themselves. With mueh gratitude and thankfulness of heart Mrs. Heath listened to this proposal, and when, after a time for deliberation, it was accepted, a burden of care and responsibility for the future was lifted from her and Molly's life.

The bright moonlight drive home from the lyceum meeting had been rather a trying time for Molly. Ned had seized it as the long-sought opportunity of informing Molly of his future prospects and plans in life, and as he informed her that she was the center about which all his other plans clustered and in her hands lay his future happiness, it was a rather difficult matter for Molly to assure him that a year

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or two of patient waiting must be his destiny, and that just now apiculture engrossed her undivided attention, and that she should not feel satisfied to give up any enterprise until she had given it a fair trial. At the end of a couple more years she could tell much better whether bee-keeping were her calling or not. Poor Ned, could only wish that the bees were in sunny Italy, where they came from, and asserted that refined, delicate women had other duties to perform ; it would do very well for men or as a pastime for boys, and much more in the same strain. But when asked how he liked the lecture he confessed that in spite of himself he had listened attentively and would watch with added interest the development of the colonies his uncle had purchased.

During the winter Molly's time was very much occupied in mission work. Business at the mills had been slack and many of the operatives had been thrown out of employment. The "Busy Bees" had met twice a week for sewing, and under Molly's supervision, many garments had been made and carried to destitute families. The Grahams had greatly assisted Molly in this work, for living in tenement house themselves and mingling with the poorer classes, they could more readily find out the wants of those in the same condition of life.

Rev. Mr. Pierson, the young, unmarried rector, in his church charitable work, came frequently to enlist Molly's sympathy and aid in behalf of some sick or afflicted member of his parish, and thus far and wide Molly became known and loved, in her almost daily ministrations. Social life too demanded her attention, for no gathering was considered complete without her kind and genial presence.

Ned Stearns often complained that Molly never had a moment to spare for him. He event became rather bitter and low-spirited over the fact that he so often found the young clergyman in attendance, when he called at Rosecroft. Indeed the fates seemed against him, for just at this state of affairs, as the woolen business continued to grow duller and duller, his uncle determined to take advantage of the quiet season and renovate some of the mill buildings. For this some new machinery must be imported and it became necessary to send some one abroad to represent the firm and make the needful purchases. Ned, who had been admitted as junior partner, was asked to go to Europe on this business, it being thought that a year's time would be sufficient to accomplish it. Again Molly had been besieged and asked to become his wife and accompany him abroad, but she had remained firm in her decision to wait two years before she gave him her final answer. Meanwhile she insisted that they both should be left entirely free from any formal engagement, although she would write him a letter a week on the subject of "bees."

The influence of the "lecture" was farther perceived in the spring, when half a dozen young men, and two young women came to Rosecroft and purchased, each, a colony of bees with which to start an apiary. Indeed, the next March and April were busy months for the Heaths.

On opening the hives in March it was found that every colony had survived the rigor of winter. Two of them, however, required feeding, which was continued till the first blossoms appeared. During this month Tom and Rob drove round the neighboring country and bought a half dozen colonies, in the old-fashioned hives, and by the last of May, after selling off ten colonies and artificially swarming the old ones, the apiary had still twelve strong solonies.

This year Nan and Ted decided to have a veritable bee garden, and with the list of plants prepared for the "lecture," they laid out every available spot as a flower garden. Indeed, they gave seeds to the neighbors' children on the condition they they would plant them early and cultivate them.

The bees did duty well, and empty surplus boxes were constantly supplied as soon as they were filled out and capped over. By the use of a queen trap natural swarming was prevented,

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but a frequent examination was made and empty frames were placed in the brood chamber as soon as the original ten were filled and the ones taken from the full hive were used as a nuclei for the other colonies. In this manner the queen was kept busy and the worker bees were multiplied and kept contented in their task of storing honey.

This year the demand for honey was greater than the year previous, and a large quantity was sold from orders received and directly to persons who called at Rose Croft for it. The receipts at the close of the second year were three hundred dollars in cash, with fifteen strong colonies and one hundred dollars worth material on hand. The children were delighted with the results, as indeed were Molly and her mother.

Read at the New York State Bee-Keepers' Convention, 1888.

Exhibiting at Fairs.

C. R. ISHAM.

In answering the question assigned to me for the subject of an essay, I can express my views in few words:

Personally explain to fair managers the importance of our industry, and promise to make an exhibit of honey, bees, and implements of apiculture that will be both attractive, instructive and interesting.

Several years ago I exhibited both comb and extracted honey at the New York State fairs held respectively in Rochester and Elmira, and although the amount on exhibition was limited, yet I generally had the crowd in Dairy Hall, and many were the exclamations, "How beautiful!" "How wonderful!" "Can this be the product of that little insect, the honey bee?" "How did you get them to build the combs so straight and perfect?" These and like interrogatories were the inqueries I often received. I exhibited some comb foundation manufactured by Wm. M. Hoge, *alias* John Long, of New York, which was then a novelty to most apiarists, as well as agriculturists, and little did we realize the important factor it was to become in the production of comb honey.

I have no doubt that when we are ready to devote the time and necessary expense to make an exhibit in bee-keeping commensurate with the importance of our industry, that there will be any difficulty in inducing fair managers to give us their cordial and hearty support.

From Journal of Horticulture and Cottage Garden.

Tunisian Bees.

Has anyone ever had these bees? if so, will they please give their experience? Mr. Frank Benton sent me a queen last spring (he tried in 1885, but only two workers arrived alive) which I introduced to a healthy black stock. By the time bees began to hatch I found the stock diseased, and put queen and bees to starve, and then gave them two dry clean combs, 14 inches by 10⅜ inches. End of June, honey being plentiful, they kept themselves, but by the middle of July they had dwindled down to about a wine-glassful of bees, with a patch of brood in one comb (one side only) the size of a penny, and as they seemed able to keep themselves, and thinking they would require acclimatising, I decided to let them alone. They thus remained till the 10th of August, when I found a larger patch of brood on both sides of one frame and one side of the other, the bees much more numerous, the brood healthy, and though plenty of eggs, not much honey; so to save the trouble of feeding and to keep them alive, I gave them another frame which contained about 2 lbs. of honey. I did not examine them again till the end of the month, when I found two patches each about the size of half a tea-saucer, being along the top bar close to the quilt. In September I thought I would find them some work storing syrup, so I inverted a 2 lb. jam bottle full on, which slowly went; then I put on a 3 lb. ditto, then I examined them about the end of September, and found the first two frames half full of brood, and a large patch in the third. When I got my other bees from the moors, I noticed they could smell sweets anywhere, and though when once in pos-

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session they kept all others at bay (English Syrians and Syrian hybrids) they never attempted to take the offensive. About the middle of October I gave a fourth frame, and went on feeding. November 1st I examined again to be sure they were safe, and found two frames quite full of brood, and a third half full. I never felt more surprised in my life, and the bees were so numerous that in a week's time they would be "hagging" out. I gave them a fifth frame half full of comb, which contained about 1 lb. of Heather honey, and I inverted four 3 lb. bottles of syrup on top of the frames. They took in all about 16 lbs. I examined them on the 2d, and found lots of sealed brood, about equal to 2 lbs. of bees, apparently plenty of food at last, the frame I gave on the first fully filled with comb to the bottom, and at least 5 lbs. of bees in the wing state. Had I had another comb I should have let them have it. I have not opened the hive since. Before this I was very much struck with their ability to bring in pollen on days when no other bees would stir out. On Novem- 1st they were bringing it in as if apples were in bloom, and in pollen stores at least they kept themselves very well supplied. At the beginning of December we had a sharp frost; on the 5th it rained in the morning and froze as it fell, everything being covered with ice; at noon I just walked round the apiary, the mercury was standing at exactly 32°, and though it was not raining, it looked like it, no sun to be discerned. Of course I never expected to see any live bees about, but a Tunisian came out, marched around the flight board, then took wing, flew round almost out of sight, turned, came back, and marched into the hive. This surprised me, but being cold and hungry, and dinner likely to be ready, I left them. Since very cold weather set in, and knowing there must be very many young bees that have never had a fly, I watched them very closely. They seem to be slightly dysinteric, but if the sun is out, and the mercury is not lower than 30°, they can take a cleansing flight and safely reach their hive again, even if the ground is covered with glittering snow, nor do they seem to fly into it like our native bees do, so that now I have great hopes of having them strong in the spring.

Their apparent hardiness has not only surprised, but favorably impressed me. Coming from a tropical region I certainly did not expect it—I thought they would be more tender than even the Palestine bees—I should judge that unlike most bees they have always been wild, inhabiting rocks in the mountains exposed to all kinds of weather, and only those capable of being able to stand the cold and wet seasons have survived. The Arabs are not much inclined to follow any peaceful occupation, therefore they may get all their honey from the rocks. Mr. Benton might give us some information I think. He has given some, the principle being that they are the blackest bees known, and that he thinks they reached Tunis from Greece. I am inclined to doubt this. I would much prefer thinking they may be the original type of our native bees; in fact, of all the black or brown bees. Anyhow they promise to be very valuable for this climate. I certainly never saw or heard of a wineglassful of bees in July getting strong enough to winter before.

The bees are ebony black, mind their own business, and only need a slight smell of carbolic acid to quiet them. Queens are very small, and whether the bees are longer lived than others, or being so much more hardy and less liable to be chilled before getting back to hives or not, the quantity of brood was very small in comparison to the bees, If this is a fixed trait, then we may expect more honey, as more fielders and less nurses comparatively will be in each hive.—*A. Hallamshire Bee-Keeper.*

The Way to Start.

Editor Bee-Keepers' Magazine:

The goods came all right, am very much pleased with them. My first swarm came out on the 26th of this month. There was a splendid outlook for early swarms, but there came about

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a week of cool weather and three heavy frosts, which put things back a little. Am afraid that our main honey crop is ruined for this season on account of fires in the mountains, which I think has killed all the young sourwood trees, but has got a good start from apple, peach and cherry bloom. Locust and poplar comes in later. If I am so fortunate as to get any sourwood honey, I want to send you a sample and get your verdict on it. I send you in this the outline of my wife's hand for a pair of gloves, and I must tell you that that hand is not half afraid of bees as I am, in fact Mrs. S. attends to hiving all my swarms through the week, and I attend to them on Sundays. You see I had never seen a swarm of bees hanging on a bush until 1885, and did not have my first swarm home until 1886, so you see I have not been keeping bees very long, and did not start them until I had read the Magazine for some time, and had read Langstroth through twice. Well, I must close.

Respectfully,

S. F. SUTOR.

Lynchburgh, Va., April 30, '88.

[To those who may contemplate the the keeping of bees we commend Mr. Sutor's method of starting in the business. Note that he read the MAGAZINE some time and Langstroth through twice before making the first step. He knew what he was about before beginning and thus avoided the false steps that many times cause a loss of the colony and discourage the novice.—ED.]

From the British Bee Journal.

Practical Work in the Apiary—Making Artificial Swarms.

Although swarms may be made artificially from ordinary hives, the modern moveable-comb system presents far greater facilities for the multiplication of stocks in this way. So easy is it to make arrificial swarms that many have ruined their apiaries by dividing up their colonies too much. We must bear in mind that multiplication of colonies means the division of each individual colony, and if carried too far only causes weakness. Beginners frequently err in this respect, and we would recommend them not to take more than one swarm from a hive in one season until they have thoroughly mastered the practical part of bee-keeping.

The bee-keeper who relies on natural swarming permits his bees to lose much time whilst the swarming fever is on them, during which time little work is done. This loss of time he can prevent by making an artificial swarm. The best time for artificial swarming is when honey is abundant, the hive crowded with bees, drones flying, and the weather fine. It is generally recommended to make swarms as early as possible, and when an apiary is being started it would be convenient to have early swarms, but many are induced to make them before the colonies are in a fit condition, to the detriment of both colony and swarm. We would rather make our swarms towards the end of the great honey-flow (in the south about the end of June or beginning of July) than too early in the season.

There are various ways of making artificial swarms in movable comb hives, and either one or more hives may be utilized in the formation of the swarm, depending upon the rate of increase desired. One colony may be divided into two in the following way: Open the hive in the middle of a fine warm day, find the queen, transfer the comb on which she is found to a new hive, and place this on the old stand; fill up the hive with frames of empty comb or comb-foundation. The old hive should be moved to a new stand, and a frame of comb placed at the side of the brood-nest in place of the one taken out, or if the bees are very much reduced in numbers, push up the division-board and do not insert the other frame. This hive will be without a queen, and will be allowed to raise its own queen or may have a ripe queen-cell inserted, which would save the bees much time.

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Stocks do but little work, and necessarily go backward whilst without a queen, hence the advisability of enabling them to obtain one as soon as possible after making the swarm. As we have removed a frame containing brood and young bees, with the queen, and placed it on the old stand, all bees on the wing gathering will return to the old spot and finding the old queen there will set to work like a natural swarm. This method is good, and is the only way to make a swarm when the bee-keeper has not more than one hive, but it should be only adopted if the hive is *very* strong. When the bee-keeper has a number of hives, and does not desire a very rapid increase, or if his hives are not very strong, it is always better to make a swarm from two or more stocks, so that little is taken out of each. We can make a swarm from two hives by taking the queen with a frame of brood from one hive, and, instead of moving this last to a new position, a second hive is moved from its stand and taken to a new position, while the original hive, from which the queen was taken, is placed on the stand of the second hive. Of course, as in the first plan, the hive containing the comb with queen upon it takes the place of the hive from which she was taken. The original hive without the queen is strengened by the returning bees of the second hive, and can be further assisted by the insertion of a ripe queen cell or fertile queen.

The bee-keeper who expects to rely on artificial swarming should have a nursery for furnishing queen-cells, and these it must be borne in mind, cannot be had at a moment's notice, bnt can only be obtained when a stock has been for some days deprived of a queen, either by removing her for this purpose or by natural or artificial swarming. Should a natural swarm issue, artificial swarming can be begun a few days afterwards, as there will be a number of queen-cells found in the hive from which the swarms left. If queen-cells are wanted, the usual way is to artificially swarm the best stock in the apiary, and after ascertaining the number of good queen-cells on the seventh or eighth day to make as many artificial swarms as there are queen-cells available. After the lapse of twenty-four hours give one queen-cell to each stock swarmed, leaving one in the hive in which they were raised. In removing and inserting queen-cells precaution should be taken to use only good, well developed cells; do not allow them to get chilled or leave them exposed to the sun, and be careful not to injure them by pressure. Combs containing queen-cells should not be shaken, but the bees carefully brushed off. The cells can then be cut out with a piece of comb attached to them above. We always place our cells between the combs near the top bar of frame, point downward, and run a pin through the cells attached to the queen-cells, thus securing it to the comb. We, however, generally give a fertile queen, as we prefer this to inserting queen-cells in artificial swarming.

Hungry For The Magazine.

I am well pleased with the MAGAZINE and your "Text Book on Bee-Keeping." You can count on me as long as I keep bees. I have thirteen hives. I have started to keep bees as a business, if I can make it go. I am going slow, I commenced three years ago, so I hope you will see that the MAGAZINE has been sent, for I am hungry for it each month. Respectfully, A. S.

New Brunswick, N. J., June 15, '88.

[So you are hungry for the MAGAZINE each month. Well, it is a good kind of appetite, and I hope you thrive on the diet. We shall always endeavor to make this dish palatable and digestible.—ED.]

Editor Bee-Keepers' Magazine :

At this writing I have not got any white honey. Basswood in full bloom and robbers so thick I cannot work at bees with any ease. too cold and dry and one third of a bloom. That means no white honey from Central New York. W. L. C.

West Graham, N. Y., July 16, 1888.

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Beginners' Department.

MOTTO—"Courage and Perseverance."

The main honey flow in most sections of the country is nearly, if not quite over. We hope the beginner has stores of the golden sweet, and it is not now the question: "How shall I get my honey" but "how shall I keep it and dispose of it?" If we make garden, weeds spring up, and it takes more time to fight the weeds than it does to cultivate the vegetables; so it is in bee keeping. The work is not simply the putting on of empty sections, and the taking off of full ones, but we are required to fight enemies. These enemies belong mostly to the insect tribe, though there are several that do not. The wax moth very properly leads the list. This moth is of a light grey color and about half an inch long. It is an exceedingly lively little creature and quite troublesome to catch. The moth itself does no injury, but like most of its tribe, in nature, all the bad traits are concentrated in its young, the *larvæ*, as they are called. The moth mother lays her eggs in cracks in the hive, or about the entrance, as some suppose, and the young hatch out, tiny worms. The healthful diet of these larvæ is wax. See how wonderful nature is in adapting her creatures to the purposes for which they were created. Here is this white worm, eating what we consider more indigestible than iron filings, and *getting fat on it too.* If you should offer the best of Huyler's bon-bons or a hunk of wax it would say "Give me that lucious morsel, that piece of wax."

Bees. you know, permit no foreigner to invade its household, and the presumption would therefore be that this wormy intruder would at once be ejected from the hive, but nature comes to its rescue, and by means of delicate glands provides it with a net-weaving device whereby it can surround its path with a web impenetrable to the bees. Thus in its silken lane this tramp travels on undisturbed, until ready to weave the cucoon, within the walls of which it shall undergo that metamorphis so emblematic of the resurrection.

This sounds all very pretty, but methinks when the bee-keeper looks at his store of comb honey, put away in a nice warm room preparatory to placing it enticingly before his customers, and finds its beautiful surface seamed and scarred by the winding paths of the tramps before spoken of, and waxy excrements hanging in festoons about the snow white boxes, and honey running down between the cracks; then, I fear, the bee-keeper will rise up in his wrath and say words no mortal man should hear. It is therefore I preach this sermon and advise you to possess your souls in peace, for a little preventive will entirely rid you of the danger of saying the words before hinted at. Sulphur fumes are not considered a desirable perfume by these moth worms—in fact they speedily die under its influence. Therefore within a couple of weeks after taking off your box honey subject it to the fumes of sulphur in a closed room, and repeat the dose in a weeks' time.

Comb, or as it is sometimes called box honey, should be kept in a warm, dry place. If kept in a cellar, it will sweat and sometimes spoil. The capping of comb is porous, and through these pores the moisture of the cellar enters the honey and causes it sometimes to sour; at any rate the sweating makes your honey unsightly and unfit for market.

Italian bees being more vigorous than the blacks or German brown bee, they are more unceasing in their warfare against the wax moth, and we must score one in their favor on this count. I spoke of the Italian bee on page 184 of the MAGAZINE for this year, and perhaps it would be well to give its characteristics more at length, seeing we have advanced a little more in bee-keeping. The Italian, to begin with is a bee with yellow rings on the abdomen. These rings number three in the worker, counting from the thorax. Let me explain that the body of the bee is divided into three principal divisions, viz, Head, Thorax, and Abdomen. Take up a dead bee and foi-

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low me as I attempt to explain its parts so that you may be able more readily to understand "bee lore" when you read it. On the head you find the tongue. In the Italian this member is supposed to be slightly longer than in the black, hence deeper flowers can be sucked dry of their nectar. On the head are the antennæ or feelers, supposed to be also the bee's ears and nose. Near them you see two great eyes, which look like iridescent patches. These are their *compound eyes*, called so because each eye is composed of hundreds of separate lenses, or eyes. It is supposed that these eyes are sort of telescopic, in their ability to discern distant objects, because it is a well-known fact that the bee, when about to return home from a distant point, sometimes several miles away, makes circles in the air as if to get its bearings, and then with unerring accuracy make a straight line for home, hence the term "bee line." It becomes apparent that this ability to go straight home either depends on extraordinary powers of vision or an internal compass. I have viewed about everything inside a bee, but have not yet struck that compass, hence must presume the compound eyes lead the wanderer home. Up on the forhead can be seen three little spots forming a triangle. These are what are known as the *simple eyes*, and are supposed to be shortsighted, and therefore used at home. Let me say, however, that eyes are not a necessary adjunct in hive work, for either these simple eyes are not used at all, or else they endow the bee with the vision of seven cats, for no matter how dark the night may be, work never ceases within the "waxen walls."

In the next division, called the thorax, is centered most of the active members, viz, the wings and the legs. The wings are four in number, two on each side. Each pair are held together, while flying, by tiny hooks situated along the front edge of the under wing. With a strong magnifying glass these hooks can be readily seen. The legs are six in number, three on a side. Each foot has hooks, to enable the bee to climb rough surfaces, and in the palm of each foot is found a sort of cup from out of which exudes a sticky substance, enabling the bee to climb smoother surfaces. With a good microscope you can as readily trace the footsteps of a bee across a pane of glass, as you could your own over a muddy road. The hinder pair of legs perform a double function, not only do they aid in walking, but they are the basket of the bees. On the outside of the wide joint of each hind leg is a depression, over which extend a series of hairs. Into this recess, and under these hairs the bee, by dexterous movements of its other legs, packs the pollen gathered from the flowers. This pollen is the dust of the ripening blossoms, and is known sometimes as bee bread by the apiarist, because it forms, after undergoing a change, the food of the larvæ of the bee. You can find any quantity of it packed away in cells of honey comb near the brood in any hive.

In the third division, called the abdomen, is found the digesting apparatus, the lungs and the sting. The first two are very important, the latter we have no use for; however, to the bee it is a valuable instrument of defense, and many times they would be in a sorry plight without their lance.

Bees do not breathe with lungs, like ourselves, but by means of openings in the rings of the abdomen leading into minute tubes which penetrate the system.

(*To be continued.*)

Clark—"Well, I will declare! Smithers, how you have picked up lately." Smithers—"Yes, yes; things were bad enough with me a little while back, but I happened to run across the advertisement of B. F. Johnson & Co., of Richmond, Va., and they put me in position to make money right along. If you know of anybody else needing employment, here is their name and address."

In School—Teacher: "Now, Julia, what is an apiarist?" Julia (10 years old): "One who keeps apes!"

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Scientific * Department.

From Gleanings.

LARVAL BEES.

The Glands and the Food of Larval Bees.

PROF. A. J. COOK.

Since the article which I wrote on the glands of bees and the food of larvæ, I have had some correspondence with L. Stachelhausen, of Salem, Tex., one of our German-American bee-keepers whose information and opinion are worthy of great respect. He does not accept the view of Schiemenz and Leuckart, which I presented, but that of Schonfeld. He presents his case with so much of reason that I am a convert at once, as all must be if the facts stated are as he represents them, and I have little doubt but they are. I am glad we have one in our neighborhood who is so conversant with German research, and so excellent a scientist, that he sees the true bearing of each fact. I hope that he will not be allowed to longer hide his light under a bushel.

At my request, Mr. S. has consented to the publication of his views. He asks that I comment upon the subject, which I am very pleased to do, as I had already contemplated writing another article, giving the views of Schonfeld. I have re-written the article, and have commented in []'s.—A. J. COOK.

OBJECTIONS TO THE GLAND THEORY.

Until 1870 it was believed that chyme was fed to the young larvæ, or, rather, that the larval food in the cells is chyme. In that year, Von Siebold examined and described the salivary glands of the bee. The large size of these glands seemed to indicate that they had some other purpose than to secrete the siliva. It seemed possible that they might secrete the larval food. Fischer described these glands a year later, and expressed the same opinion as to their function. Leuckart then declared that he had taught this theory to his students for years.

I then thought this theory very plausible, and probably the true one; but I expected further study and a closer examination, but expected in vain. Von Siebold, and probably Leuckart as well, worked on other problems. I supposed a microscopic examination of the secretion from these glands would prove the identity of the same with the food of the larvæ, but no such proof was forthcoming. It may be said, that there is too little of the product of the glands for analysis. But just this seems to indicate that the comparatively small glands cannot secrete so large a quantity of larval food.

[This view alone would not count for much. There is too little nectar in most flowers for a successful analysis; yet the bees gather pounds of it in a day. Supposing that the lower head-glands of a single bee do not secrete enough material for successful analysis at any one time, yet thousands of bees might do this with the whole day before them, and have enough left to feed all the larvæ.]

In 1880, Schonfeld published his theory, which seemed to me nearer the truth.

Years before, Leuckart described the larval food as a granular, milky, uniformly colored fluid containing many microscopic corpuscles, similar or identical with the blood corpuscles, and with the corpuscles found in the chyle, or digested food, in the true stomach, which chyle passes directly through the walls of the stomach by osmosis. Wolff states that the blood corpuscles originate in the stomach.

Analogy of the mammalia favors the gland theory of Leuckart. It seems plausible that the young bee, like the young calf, is fed with milk; yet not so plausible when we remember that the larvæ is not a young bee. I would rather compare the larvæ to the embryo of a mammal, and this is nourished directly from the blood. The chyle of bees is, in fact, identical with their blood, and contains everything necessary to build up the body of the bee; so it seems rational and natural to suppose that the chyle is the larval food.

[Analogy is always an uncertain argument. In case of animals as wide

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apart as the mammalia and insects, it really has no force. Grant that it had, even then in the case in question it would be difficult to say which way the argument pointed.]

With higher animals, the origin of the chyle is more complicated, and digestion is completed in the small intestines. In bees, the structure of the canal is different; and it is possible that chyle originates in the stomach.

[Here chyle must mean the sum total of digestion. With higher animals, chyle means simply the digested fat, and is carried to the blood through a special system of vessels, while the other products of digestion are mainly absorbed directly by the blood-vessels.]

If the larval food and chyle are identical, of course we must depend on the microscope to prove it. If we examine the stomach of the worker bee we find more or less partially digested food, but no chyle.

[From the fact that, in examining many bees, I have never found the granular milk-like substance fed to larval bees, was my principal reason for accepting the secretion rather than the digestion theory.]

Schonfeld made the following experments, and hereby is explained how the chyle can be found in the true stomach of the nurse-bee:

a. Honey colored by cherry-juice, is fed to bees in a starving condition.

b. Honey colored by holly-juice is fed in the same manner.

c. In like manner, honey mixed with pollen of the white lily, which is easy to distinguish with the microscope was fed.

After feeding, in each case the contents of the stomach, and the larval food, were carefully examined with the microscope. In every case the food in the cells with larvæ was the same milky granular substance, with no color, nor any lily pollen. This larval food, then could not consist of chyme or the material from the honey-stomach.

Every hour a nurse-bee was examined, and the process of digestion noted. The color was seen to fade out, *and the true chyle was found, differing in nowise from the food given to the larvæ.* While in the intestine, red and dark-colored excrement, mixed with pollen-husks of the lily, were plainly evident. *Many bees were caught, just about to feed the larvæ, and the chyle was found in each case.*

[This, of course, is crucial. Not finding chyle, like larval food, in the stomach, does not prove its universal absence. Finding it once, proves its existence. Granting the fact, the conclusion must follow.]

SALIVARY GLANDS OF BEES.

All mature bees—workers, drones and queens—possess—

I. The upper head salivary glands, and—

II. The thoracic salivary glands.

Besides these the worker-bees have—

III. The lower head salivary glands.

Glands I. and II. have a common ending at the base of the ligula, in the groove formed by the paraglossæ. This secretion can, as the tongue is extended, flow into the grove and wet the ligula, but can go no further, because the ligula, or sucking-tube, is no fountain-pump, and the larvæ has no sucking arrangement to draw this out.

[A stronger argument, perhaps, lies in the fact that drones and queens also have these glands, and surely they do not feed the larvæ. No one can think that these are the milk-glands, even if milk-glands exist.]

The secretion from glands I. is oily; that from glands II. watery, which would indicate that they possess a different function.

The function of the sucking apparatus will show that the saliva is necessary to wet the ligula, and to make it possible that the nectar can ascend. It would require too much space here to explain the function of the sucking apparatus, which is a misnomer, as bees never suck nor lick.

[Very likely the saliva, like our own, may serve to aid in keeping parts moist; but from the size of the glands, and quantity of the secretion, this, as is our own case, must be incidental. I think our friend is surely mistaken in his last assertion. I think I have

shown that bees do both suck and lick.]

If bees do change nectar more than to evaporate it—that is, if they change the kind of sugar (I am not sure that they do), then it is probably done by gland II. Such a change could be due only to a ferment, and could come only from the saliva.

[I know that bees change cane sugar to reducible sugar, both when fed cane syrup or nectar. I have had analysis made in both cases. While not all cane sugar would be reduced, most would be. That the saliva from glands I. and II, does this there can be no doubt. Honey is digested nectar, the digesting ferment being this saliva. While the drones and queen are fed in part by the workers, yet they take honey ; and unless this is fully digested by the workers, the drones and queen must finish the work, and so must have glands I. and II.]

The most important purpose of glands II., or their secretion is for the test-organs which are in the groove at the base of the ligula.

[I do not understand this point.]

Very likely the secretion from glands I. may be used to wet and smooth the newly formed cells. Thus these secretions are true saliva, and cannot be larval food. This is without doubt true. Yet organized liquids do often have a double use. The pancreatic juice in the higher animals digest starch, fat and may digest the albuminoids—will in an alkaline liquid.

THE LOWER HEAD GLANDS.

The ducts from the lower head-glands open into the lower part of the mouth, between the muscles of the mouth. If the bee chews, this secretion must surely empty and be mixed with the chewed material. This, then, is mixed with the pollen. This is certainly true ; for the pollen in the honey stomach shows some of its caps open or elevated ; and as no gastric juice is secreted in the honey-stomach, this partial digestion is accomplished by the saliva, and presumably that from the lower head-glands. Further, this saliva is used in kneading the wax by the jaws. F. Huber (*New Observations*) says that the fresh wax scales and the chewed wax are chemically different ; and Eulenmayer and Von Planta found in the wax scales 0.5977 per cent. nitrogen, while in the chewed wax there was 0.95 per cent. This must be due to this saliva. So we see that these glands secrete true saliva, and so cannot be organs to secrete bee-food.

[I have replied to the last argument before. The above positions are well taken. Is it not quite likely that these serve merely to mix with and partially digest the pollen, and that Wolff's glands at the base of the mandibles are the glands that moisten the wax?]

The large size of these glands is no argument favorable to the gland theory, if we take it into consideration that the saliva is very important in digestion, and in part takes the place of the gastric ferment of higher animals. Surely a large quantity of saliva is added to the pollen food of bees, and so this saliva is indirectly a part of the chyle and larval food.

[This is surely a powerful argument. We secrete saliva almost entirely to moisten our food, and the daily quantity is estimated at three pints. If this saliva in bees is to moisten the pollen, and the position of the duct adds powerfully to the argument, then much would certainly be needed. The fact, too, that drones and queens do not have these glands, and do not prepare their own nitrogenous food, is in harmony with, and, in fact, lends support to this view.]

We can find the same glands in other insects which do not feed the larvæ at all, as *Eristalis tenax*, which has these glands fully as large as those of the bee; and *Nepa cinerea*, which has these glands, and they are very similar to those in the bee.

[This is surely a very strong argument.]

The product of these glands cannot be spit into the cells, for bees never spit. Nor is it at all likely that this secretion is swallowed to be regurgitated into the cell. Nature always empties her products where they are to be used ; so if there were milk-glands they would

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either empty into the honey-stomach, or else some apparatus would have been developed that this secretion might have been poured directly into the cells.

[I think these points are excellent.]

These glands are in full function all winter, when no brood is to be fed. They must then have another purpose.

[How is this when bees have no pollen for their winter food? Of course, they usually have the pollen.]

If a colony passes the winter queenless, and no brood be fed for five or six months, and then receives a frame of brood which has been kept out of the hive until the larvæ are in a starving condition, we observe that this brood is fed at once. If this food is a product of glands used only for such purpose, this would be absolutely impossible after such long rest.

[This is certainly a good point.]

If bees are fed honey mixed with indigo, the larvæ are no longer fed, but commence to starve, while the mature bees remain healthy. The indigo prevents contraction of the stomach, and so regurgitation is impossible; yet the food is digested and absorbed. If the larval food were a secretion it would still be supplied.

[Granting these facts, the conclusion must follow.]

The following experiments of Schonfeld prove that the larval food is chyle:

Bees were fed honey mixed with carmine. In the larval food of this colony, and also in the chyle of the true stomach of the bees, were found the chillinous points of the cochineal insects from which the carmine is made. The blood was normal, because the fine particles were not digested, and, of course, could not be absorbed. As a secretion is derived from the blood, the secretion could not have what the blood did not have.

[This is also a crucial argument. The facts granted, the conclusion must be.]

Powdered iron was fed, with the same results.

Again, bacteria were fed to the bees —at first *Bacterium termo*, and then the bacillus of foul brood—*Bacillus alveolaris*. In both cases the organisms were found in the larval food, but not in the blood of the nurse-bee. As these were not in the blood, they could not exist in a secretion from the blood.

[This is an interesting point, as it explains fully why the fasting method, or the changing of the bees to clean hives, cures this dreaded malady.

Von Planta finds the food of the young larvæ as follows:

	Queens.	Workers.	Drones.
Albuminous,	46.5 ℔ cent.	50.16 ℔ cent.	39.91 ℔ cent.
Oil	12.62 ℔ cent.	6.84 ℔ cent.	7.85 ℔ cent.
Sugar	17.90 ℔ cent.	27.95 ℔ cent.	1.17 ℔ cent.

We see that the food for the different kinds of larvæ varies greatly in composition. If this is a secretion it could not vary, as the glands could not secrete arbitrarily a richer or a poorer substance. But if this is chyle, it is easy to understand its variability; it would necessarily result from a variation in the food of the nurse-bees as to honey, pollen or water. The defenders of the gland theory say that the secretion may be mixed in the honey-stomach with honey or water—pollen is out of the question, as we have seen that it is not given undigested to the larvæ. The experiments with colored honey shows this to be untrue.

That chyme [Mr. S. uses this term to denote partly digested food] is added to the secretion of the gland is out of the question, because chyme is surely prepared in the true stomach, and not in the honey-stomach. In the chyme are the shells, or husks (cuticulæ) of the pollen, but no whole pollen grains. If we examine the stomachs of bees we shall never find such empty pollen grains—husks—in the honey stomach, except in the case of quite young bees just recently emerged from the cells. These bees are fed by the older bees with chyme. In the true stomach we find these shells, if we examine a bee at the proper stage of digestion.

As soon as the larvæ fills the bottom of the cell—from the close of the fourth day—the larvæ receives chyme, or partially digested material, from the true stomach, and this contains the cuticulæ. At first these are few, but more and more are added, so that just before the cell is capped, they are numerous.

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This is also true of color when colored honey is fed.

[This is very interesting, and bears the impress of truth. This chyme is fed to the larvæ of workers always, and sometimes, not always, I think, to the larvæ of queens.]

The defenders of the gland theory say that it is impossible that bees regurgitate any material from the true stomach in the cells; for, as Schiemenz has shown, the stomach-mouth is prolonged into the true stomach, and so would act as a valve, and prevent any of the contents of the true stomach from passing back into the honey-stomach and mouth. But Schonfeld has shown that this is a mistake. The muscles are so arranged that this prolongation can be drawn up, and so in nowise prevent regurgitation. The bee itself proves that it can, for the full-grown larvæ does receive chyme, the product of the true stomach, and not of the honey-stomach. If the bees can regurgitate chyme or partly digested food, they surely can chyle, or that which is fully digested. This is chyme and not pollen, as the husks show.

Why should we be surprised that the bee does this? It is a master of regurgitation, vomiting up all its honey, and some of it several times. A full understanding of the stomach-mouth enables us to understand how it regurgitates its chyme and chyle.

L. STACHELHAUSEN.

From the Australasian Bee Journal.

ADULTERATION OF HONEY.

Some short time ago Major Shallard, an extensive bee-keeper in New South Wales, felt convinced that a great deal of adulterated honey was being sold in that colony to the injury of the legitimate honey producer. After drawing attention to the matter through the press he was instrumental in getting the New South Wales Bee-Keepers' Association to take it up. This body instructed one of its members—Mr. Hamer, an analyst—to examine several samples of suspected honey, and report the result. On the 8th of March last, Mr. Hamer submitted his report, prefacing it with an interesting paper on the constitution of honey, which we now publish. For the copy we are indebted to the kindness of Mr. J. R. Dibbs, Honorary Secretary New South Wales Bee-Keepers' Association. It is gratifying to know that adulteration is not carried on to the extent that was supposed.

Before attempting the subject of the adulteration of honey it will, perhaps, be best if we have first a clear idea of the nature and composition of the genuine article. To gain this we must go to the beginning of things, and trace its origin, for we shall then see that more than one branch of science must be entered upon before we can adequately appreciate the labors of the wonderful little insect that furnishes us with the product we so much esteem, and which is so often used in the poetic sense to denote the riches and abundance of a favored country when we speak of such and such a land as "flowing withmilk and honey."

One of the lessons that a science student soon learns when brought face to face with the facts of Nature is, that all the branches of knowledge commonly called "the sciences," are dovetailed, as it were, into each other, and any particular department of science is very much better understood if the borderland of the next adjoining science is carefully surveyed too. Such is the case with regard to the subject now before us; and without more preface let us commence with the

ANTECEDENT ELEMENTS OF HONEY.

An unpalatable gas exists in the vast ocean of air above us called carbon dioxide, or carbonic acid gas. This substance, although existing as an invisible gas, is of the greatest importance to plant life, and serves, amongst other things, in the air, the soil, and the water, as an indispensable food to the living plant.

One of the most graceful and beautiful parts of the plant is its leaf, and whether from the poetic, artistic or utilitarian point of view, the study of the leaf alone will amply repay one's time and study. Microscopic study of

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a leaf; its form, position on stalk, toothed or plain edge, texture, surface, smell, smooth, woolly, or venatious, are each worthy of note. But we are more particularly interested in the under side of the leaf—the stomata or mouths. 100,000 of them are often to be found on a single leaf; size of one $=\frac{1}{8000}$ inch; their use, the absorption of CO_2 (carbonic acid) and OH_2 (water). Presence of chlorophyll (the coloring matter in plants). Water + chlorophyll + CO_2 (carbonic acid) + sunlight, produces starch. Product of life—Atoms, raw materials = COH (carbon, oxygen, hydrogen). Honey, the finished product. Steps: CO_2 (carbonic acid), OH_2 (water), $C_6H_{10}O_5$ (Starch), $C_6H_{12}O_6$ (dextrose, main constituent of honey). Example of the work of a living plant, formation of starch—1. Afternoon; 2. morning; 3. midday; 4. evening. etc. The work does not stop here. Another agent, diastace, converting starch into sugar, and $C_6H_{10}O_5$ (starch) into $C_6H_{12}O_5$ (dextrose), in some plants stored up as sugar; other as starch. Examples—Vine, passion fruit (sugar); maize, potato (starch). Plants are hard workers, and know no eight-hour movement. The most wonderful of all is that these large stores of starch or sugar are not available to the bee in making its honey. A portion of the sugar is diverted to the nectaries of flowers, generally known as nectar, and this sugar is placed in such a position that the bee fertilizes the flower in the very act of obtaining it. The fertilization of flowers is a most interesting subject, which, however, I must pass by. The greatest naturalists who ever lived have devoted their lives to this branch of science.

QUANTITIES OF SUGAR IN CERTAIN FLOWERS.

Common garden pea, one flower, ·153 grains sugar; vetch, ·002 grains sugar; red clover, ·003 grains sugar; fuchsia, ·117 grains sugar. In the bee's honey sac an acid converts the cane sugar of the plant into a variety of sugar called dextrose by the time it is deposited in the cell. Honey consists chiefly of dextrose and lævulose.

COMPOSITION OF HONEY.

Water, 14 to 23 per cent.; a variety of sngar called dextrose, a variety of sugar called lævulose, cane sugar, traces, in new honey, but is converted into dextrose by the acid in the honey, mannite, 67 to 75 per cent.; wax. pollen, mineral matter (ash) ·15 to ·3 per cent.; phoshphate of potash, ·013 to ·032 per cent.; bitter principle, alkaloid; formic acid, organic acid not yet isolated; dextrose, $C_6H_{12}O_6$; lævulose $C_6H_{12}O_6$.

ADULTERATION OF HONEY.

Obviously the cleverest, would be the mixture of these two kinds of sugar in about the proportion found in genuine honey. This is both theoretically and practically possible, and the most difficult cases to detect sophistication are just those in which such proportions have been used. But the most valuable and most reliable tests are those based upon the presence of what I may here term the minor constituents, namely, the wax, pollen, organic acids, and ash.

Tests adopted until very recently: A solution of pure honey in water precipitate. 1. Fehling's mixture in the following proportion—100 parts honey give 137 parts Cu_2O (copper oxide); 2. Alcohol should give no precipitate; 3. P_6 (lead) acetate = no precipitate; 4. Ba Cl_2 (barium chloride) = no precipitate; 5. Pure honey is entirely fermentable into $C_2H_5H_0$ and Co_2 (alcohol and carbonic acid); 6. A ten per cent. solution should have no action on polarized light, but if any to the left.

In 1884, Messrs. Abram, Lyle & Co., Mincing Lane and North Woolwich, brought out their artificial honey or honey substitute. Now, as this was entirely manufactured from molasses and converted cane sugar, the preceding tests (many of them) were useless. Entire absence of P_2O_5 in ash of artificial honey, in genuine honey, ·01 to ·035 per cent. P_3O_5. Possible adulteration: 1. Corn or starch syrup; 2. Converted cane sugar; 3. Molasses or cane sugar syrup. Curiously, American artificial honey made from glucose

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syrup and of so-called Swiss honey in the British market over sixty per cent. are adulterated.

EXAMINATION OF HONEY SAMPLES SUBMITTED BY MR. SHALLARD.

Samples.	Copper Oxide Test.	Alcohol.	Lead Acetate.	Barium Chlor. Test.	P_2O_5	Polariscope.	Microscope.
Mr. Mackay's, in the comb.....	parts	nil	nil	nill	yes	—	pollen
Flowerdale.....	parts	nil	trace	trace	yes	*5	pollen
*Robt. Cooper's	parts	nil	parts	parts	trace	*6·0	traces pollen
†Walker & Kirkhams.....	parts	nil	parts	parts	nill	*9·0	traces pollen
San Jose, California.....	parts	nil	nil	nil	yes	—	pollen
Cutting Packing Company....	parts	nil	nil	nil	yes	—	pollen
In the comb, Sydney market...	parts	nil	nil	nil	yes	—	pollen

* Five per cent. foreign syrup.
† Ten per cent. foreign syrup.

A Puzzler?

Editor Bee-Keepers' Magazine:

Can any of your readers solve the following puzzle: Two bee-keepers drove to the market; each one had thirty jars of honey. They made the agreement to share the amount equally between themselves. The first one sold his honey at two jars for one dollar, which entitled him to fifteen dollars; the second sold his at three jars for a dollar, for which he was to receive ten dollars. This together would amount to *twenty-five* dollars. But the dealer when he was told to pay each man an equal sum of twelve and a half dollars, said: "See here! As you two had sixty jars together, and one sold me two and the other three jars for one dollar, it follows that I have to pay you two dollars for five jars. As twelve times five is sixty, I owe you twelve times two, or *twenty-four* dollars." Now the dealer was perfectly right in his way, but how can the difference of one dollar be explained? Yours,

A. HEINZ.

Syracuse, N. Y.

From Gleanings.

USE AND ABUSE OF UNFINISHED SECTIONS.

Valuable Suggestions on How to Dispose of Them.

J. A. BUCHANAN.

In the discussion of every question that is brought up in our bee-journals, we have extremists whose advice it would not be wise to accept. Some say, "We have no business to have many unfinished sections, and with proper management there is no need of having them." There will always be quantities of them as long as sections are used, since it is true, that by a sudden and unexpected ending of the honey harvest by drought, or by too much rain, the flow is cut off, which circumstance can not be controlled by the bee-keeper. This being true without a possible remedy, it is only necessary to deal with the problem of what shall be done with this uncompleted work. Some have advised burning the sections and melting the combs. Now, this is bad advice, bad economy, and poor judgment. To make a fair living for a family out of the pursuit of apiculture (in most localities) it is wisdom to concede the fact that close, economical management must play an important part in the business. These partly filled sections are the best stock in trade about the apiary. When by actual experience I find that my bees will enter the sections more freely when they contain drawn combs, I want starters of comb, and I want them bad, say what you may about sections filled with foundation.

My first experience in the use of partly filled sections was not satisfactory; and especially was this so with those that had been pretty well filled out the previous season. The honey presented an oldish appearance, causing customers to ask: "Is this not old honey?"

I will now give my plan of working these unfinished sections up into cash.

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When the honey harvest is about closing, and work on sections is so slow that the loss is becoming greater from discoloration than is gained by completion, they are at once removed. Those completed are put in crates ready for market. Those almost finished are sold to any who may wish to buy them, at a little less price. What are not disposed of in this way are cut out, put in pans, filling the interstices with extracted honey taken from the poorer finished sections. The pan and all is sold for about full price of nice sections, and no trouble to do it. The partly filled sections, after being nicely cleaned of wax and propolis, are run through the extractor, after which they are returned to cases as before, and stacked up in short tiers. These are placed over or near hives at night, to be cleaned up. They are then stored away in a mouse-proof place until the next season.

Previous to placing these again over the bees, the combs are reduced in thickness so that the depth of the cell is not over one-fourth of an inch. To do this nicely and speedily I got out a piece of sheet iron, smoothed on one side, and just large enough to easily go inside the sections. To the four corners of this are fastened small rods of iron, of a suitable length to permit a small lamp to go under the plate. A good heavy block of wood, having holes to receive the legs of this small table, makes all solid and a nice place for the lamp to rest. Now, by turning on or off the flame, the plate is kept at such a degree of heat that the comb is quickly melted away to the desired thickness. They are now placed in the cases, and when the surplus room is needed by the bees, these sections are given to the strongest colonies, and at once they go to work on them. After the bees have worked on these combs a few days I examined all other colonies; and where any are found slow about starting, I take four or five of these sections, bees and all, and place them in the center of the case, which will usually start them at once; but if any colony, for lack of bees or other cause, still refuse to go to work, I exchange a full case, which never fails.

By melting away part of the length of the cells the bees are compelled to add new wax in lengthening them out, which, when finished, will be as fine in texture as though no old comb had been used. If the honey taken from the unfinished sections is not ripe enough to be nice, it must be placed in open vessels in a dry warm airy place, where it will soon become "orthodox" honey. Some advise giving the unfinished sections to light colonies. As long as I can get ten to fifteen cents for this honey, and granulated-sugar syrup for five cents a pound, the latter will be used to supply colonies deficient in stores.

Holliday's Cove, W. Va., Nov. 21, '87.

From the British Bee Journal.

Bee-Keeping in Russia—A Floating Exhibition.

Bee-keeping in Russia is making great strides. The committee of the bee department of the Imperial Society of acclimitation in Moscow is taking the most worthy and effectual steps to make known and encourage a taste for this science, particularly in the country. From a return made up by this Society it would appear that in the district commonly known as the "Moscow Government" there are no less than 3148 agriculturists owning, among themselves, 5100 stocks of bees, and yet this district is not one of the most favorable for apiculture. Instruction in bee-keeping has been very limited in this district. Bee shows are rare and not at all within the reach of the people living in the country. It is, therefore, mostly with the object of remedying this state of things that the Committee of the Imperial Society has organized, at Mr. Nassonow's suggestion, a free, floating show, which has effectually excited the curiosity and interest of the inhabitants of the villages through which it has passed. Prince W. Dolgoroukow, the Governor-General, who was good enough to become honorary chairman of this Exhibition, and which had already been patronized by Mr. Podgorozky, President of the Committee, Professors Bogdanow, Krasnoe-

whow, honorary members, aud other members of the bee committee. Mr. Nassonow and Mr. Krotkow, Russian ecclesiastics, have more than any other occupied themselves with the bringing together of the necessary exhibits of the show, which was brought before the public for the first time last year, when it consisted of only one ship, towed by a steamer.

Narrow as the space was on board this boat the collection of the different styles of hives left nothing to be desired. Some of these hives were stocked with bees, and there was a good assortment of diagrams and engravings explanatory of the natural history of the bee as well as an interesting collection of literature on bee-keeping. The collection contained, moreover, a complete assortment of utensils most useful and simple of construction. There was also a laboratory on board, specially fitted up for the collection and preservation of any bee flowers to be met with along the banks of the Moscow river. The deck of the ship was converted into a garden, and numerous were the choice flowers and rare plants which were to be seen among the displayed bee-hives.

The exhibition left Moscow on the 14th of July, and in the course of its journey stopped at Bronniog, Pererva, Ougrecha, Kalomenskoö, Ostrow, Mjatschkowo, Rogestweno, Markowo and Lophjenock. Wherever it stopped visitors, about 6,000 in number, gave every evidence of feeling very interested in the various articles brought under their notice, and listened with the greatest attention to all explanations given. Besides the means of familiarizing the country people with bee-keeping, the members of the exhibition gave a series of lectures in the various village school-rooms, in the course of which the best works on bee-keeping were freely recommended. For this latter purpose the Committee had printed Mr. Nassonow's book, *Des Abeilles et de la manière de les gouverner.*

Whilst staying at villages, Messrs. Nassonow and Krotkow, were in the habit of visiting apiaries and giving to their proprietors, who as a rule, were ecclesiastics, their best advice. This seed has been sown on good ground, and there is no doubt but that it will soon bear fruit. The good lessons given to these owners are certain to find their way to their friends and neighbors.

The floating show returned to Moscow in August, and it was kept open for some time afterwards for the benefit of the public ; but it finally closed on the 20th of the same month. The steps taken in this direction by the Moscow Committee is sure to be of great service and to it a considerable portion of the progress which Russian apiculture has made of late is to be attributed.—J. GRISARD (*Ball. de la Société d'Acclimatation.*) From *L'Apiculteur*, of Paris.

From the American Bee-Journal.

The New Heddon Hive Considered and Criticised.

DR. G. L. TINKER.

In the controversy with Mr. Heddon I have had no ill-will towards him, nor cause for it. My course has been prompted wholly by a desire to forewarn the public against a recognized wrong. Mr. Heddon charges that I have done him an "injury," In reply I will say, that it is better that he should suffer injury than that the bee-keepers of America should do so by the introduction of such a hive.

Mr. Heddon devoted a chapter in his book, "Success in Bee-Culture," to the claims for his new hive, alleging that he had used it two years, and that it had been fully tested by himself and "students."

The "new principles" set forth were new indeed, and would no doubt have caused a revolution in bee-culture had they proved in practice what they were represented to be. But they did not so prove, and it now remains to be seen if they were not wholly theoretical from the beginning. They were captivating and plausible, and bee-keepers generally accepted them as established facts on Mr. Heddon's statements.

The feature above all others that was heralded in advance of the issue of his book, was the alleged fact that we

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could "handle hives" if rightly constructed, instead of many frames in all needful work in an apiary. It was confessed at the outset that it would cost about twice as much as other hives, but the advantages were such that the extra cost was a small item in summing up results, for "success in bee-culture" was over assured to every bee-keeper!

Many bought rights, and many more bought hives with genuine Yankee enthusiasm. Mr. Heddon says over 500 got the hives. At last it appeared that the hive was not what it had been represented to be, that it was in fact a fraud. Then reports were called for, but only 58 bee-keepers out of the 500 made favorable reports. Over 400 were silent as a tomb! Had the hive been the great success it had been represented to be, can any one believe for a moment that all these men would have remained silent?

The hive must stand or fall on the claims that have been made for it. First, Mr. Heddon's new super is not a success. If it was we would find that all who use his divisible brood chamber also using his new super. But all do not. A large number of bee-keepers use and prefer Mr. Heddon's old super on his new hive. That "settles the merits" of the new super.

There remains only his divisible brood-chamber to be considered, and every bee-keeper must now see that it is a failure, if it cannot be handled as represented; for if it cannot be, why handle 16 brood-frames when 8 can be handled just as quickly, and answer the same purpose; why be to the extra cost? It was claimed to be an easy task to shake out the bees and queens from the cases, discover queen cells, etc. But the bees and queens cannot be shaken out as represented. It can neither be done readily nor easily, and if it could be, we are often unable to see all the queen-cells, as I have found in many instances. As well try to shake the bees out of a case of sections. It can be done but it is a laborious undertaking.

One of the 58 men who reported favorably on the hive, who lives not far from here, and obtained his hives direct from Mr. Heddon, recently made a thorough test of the "shake out function" of the hive. Aided by another expert bee-keeper who had charge of the hives the attempt was made to shake out the bees and queens from several hives, without success. The attempt was also made to drive the queens down on the bottom-board with smoke, with no better success. One colony of hybrids were so enraged by the shaking, that the apiarists were driven out of the apiary. At last, our friend, unable to find a queen, or to shake out the bees, gave up the experiment in disgust, and declared that he would transfer the bees to other hives.

The experience of these gentleman is the same as my own, that the "shake out function" is a humbug. Add to this the difficulty from brace-combs, and the divisisible brood chamber has not a thing to recommend it. It becomes at once a complicated, expensive and worthless contrivance.

But Mr. Heddon claims that I have not used *his* hive, but instead a modified one, and not a divisible brood-chamber at all. Let us see about that. The idea was given out by Mr. Heddon that there was no need of handling brood-frames, but instead, hives. I would make the most of this valuable (?) function of the new hive. So I made it the exact capacity of an eight-frame Langstroth hive. The cases were made very light, of ⅜ inch stuff, and the frames ½ an inch more shallow than Mr. Heddon's. Besides, to make sure of the "shake out function" the top and bottom bars were made only ¾ of an inch wide. These cases were illustrated in *Gleanings*. But after all my care in the matter, and numerous trials, I found the "shake out function" to be impracticable to a man of ordinary strength and endurance, even with my little cases.

Mr. Heddon is fond of alluding to what he is pleased to call my "mistakes." But my mistakes, if I have made any, are trivial indeed as compared with the grand mistakes of Mr. Heddon in his unfortunate hive theo-

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ries. It is human to err, but I must object to one of the most signal failures in the history of apiculture being paraded before the public under the false guise of "success." Charging me with mistakes will not blind the public to the fact that the principle of his new hive is wrong, and that his theories regarding it are highly deceptive and misleading.

In conclusion I must observe, that Mr. Heddon has made no improvements in bee-hives as alleged; at least not in the so-called new hive. The Heddon-Langstroth hive with the Heddon-More super have met with favor, but as an "original inventor" we shall hope that our friend may yet distinguish himself.

New Philadelphia, Ohio.

Foul Brood Cure.

FRANK R. CHESHIRE.

The following selection was made from Cheshire's work, by the *Bee Keeper's Guide:*

"Our third head now demands our attention. In what way can we most successfully, if at all, treat and eradicate this pest? Although ever an earnest advocate of curative measures, I am yet at the outset constrained to say that the disease is so sadly infectious that those who are by nature apathetic, or whose occupation will only permit half attention to their bees, may inflict grevious wrong upon their neighbors by attempting any cure, as this is likely to be done in a fitful, negligent fashion, keeping the disease languishing, while other stocks are, through it, being made victims. To such I advise, as the kindest course to self and others, the destruction by fire of the combs, and, possibly, even the frames and hives. If the bees are worth saving, make a swarm of them into a skep, and transfer forty-eight hours later into a frame hive. If there be much brood, the case not a very bad one, and the robbing season not at hand, unqueen, cutting out all royal cells eleven days later, and giving from a healthy stock a royal cell just sealed. When the queen hatches—by which time nearly all the worker brood will also have left their cells—make a swarm of them into a skep, and transfer on the second day into a frame hive. The queen will in seven or eight days begin to lay, and probably all will go well. The re-queening removes the possibly infected queen and gives in her place a healthy one, while the delay gives time for the diseased bees to die off before they are required to act as nurses, which is the virtue of the so-called "Starvation cure." The honey in the diseased combs may be melted down, thinned with water, boiled, and used as food, preferably with medication.

The destruction of the hive, however, is never *necessary*, for, after the worst cases, it may be used again with perfect safety, if, having been washed and dried it be scrupulously painted with a mixture of two parts methylated spirit and one part carbolic acid crystals, or one-and-a-half parts good white fluid carbolic acid. This mixture not only rapidly destroys all bacilli and spores, but it glues them down into place, by dissolving the propolis and insinuating itself into every cranny. Other methods are at command, Mr. R. Sproule having contrived a disinfecting apparatus which he finds perfectly efficacious; by it he vaporizes carbolic acid in iteam, which is carried through the carpeting by a pipe. The processes of ovening, or prolonged boiling, will also, from what has been said on sterilizing, disinfect the hives and frames. The oven of the kitchener will usually be large enough to receive the latter, and so can render them re-fit for use. I believe, for hives, the process of painting with my mixture, now recommended, will be found most generally useful. But let none depend on a hope that the spores will die by simply leaving the hive empty for a season. I have just tried some of these spores kept sixteen-and-a-half months in a glass tube, and exposed on several occasions to a temperature below frost. Upon introduction into gelatinized meat-juice, they immediately started growing.

The old German plan of giving salicylic acid in food, and spraying with a 1-150 solution of the same I found, many years since, effectual, but necessitating much care and prolonged atten-

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tion. Those advocating salicylic acid now recommend its use in a fumigator, as devised by Monsieur Bertrand. This apparatus, which looks like a small still, containing a spirit lamp, the frame of which rises beneath a metal dish. Surrounding the latter is a cylinder of stout tin, covered by an inverted funnel form, the neck of which is bent to the horizontal, and made in cross section an oblong 5 inches by 1¼ inches. The hive is raised from its floor-board until the mouth of the funnel passes in at the entrance, and the corner of the quilt is lifted to permit a free circulation of the vaporized acid 1 gram (15½ grains) of which is placed in the dish, over the burning lamp. Every portion of the hive is reached by the vapor; and when the fumigation is repeated every few days, early in the morning or late in the evening, so as to have all the bees at home under its influence, it is said to be very effective. It is singular that salicylic acid at 220° C. it converted into phenol and carbolic acid, and that to vaporize salicylic acid without this conversion is a delicate operation. Doubtless, therefore, the process given is likely to be more really fumigation by phenol, although, nominally, by salicylic acid. The objection seems to be in the extreme uncertainty of the amount of dose given by this arrangement.

The phenol treatment has been largely associated with my own name, because I originated a new application of an old remedy. My words at the Congress were: "About three years since, Mr. R. Sproule, an Irish gentleman of culture, mentioned to me that he had used phenol in the treatment of brood with a good deal of success. I replied that I would seek opportunities of experimenting, and if I found the result advantageous I would, as I am always glad to do, mention his name with thanks for the suggestion." The suggestion, as I now know was not novel. But the way of utilizing the remedy had not yet been discovered, and Mr. Sproule, with it in his hands, for want of noting the way of giving it, lost a large part of his apiary. His plan was to feed with syrup, into which he put a small quantity of Calvert's No. 1 phenol, or carbolic acid; but Ligurians refused the food, and succumbed to the disease. Striving to keep to my expressed intention of seeking opportunities to experiment, I, up to the close of 1883, found and treated six stocks, with results that convinced me that, with proper management, I had a remedy beside which salicylic acid was but vexation of spirit. Old experience with the latter drug had shown me that the system of spraying was chilling and depressing, and that medicine and food should, if possible, be given together. We thus get a constant quantity, as every grub must receive the same amount of nourishment; and if we have a curative agent, and have ascertained the dose, the difficulty is accomplished.

"To place the food with added phenol on the hive, will, however, do nothing in the greater number of cases. If honey be coming in, the bees will not touch it; but open the stocks, remove the brood-combs, and pour the medicated syrup into those cells immediately around and over the brood, and the bees *will use* a curative quantity of phenol." In my experience I inoculated a stock, and allowed it to get into a bad state, then inserted a comb of store in the centre of the brood nest, and treated one side, from which the disease disappeared, but raged, although with abated fury, in the other half. Having, by these and many similar experiments, made the curability of *Bacillus alvei* a certitude, and having ascertained that one-four-hundredth of phenol could be given to the bees without limiting the queen in breeding, or touching her health, while one-five-hundredth dispatched the bacilius quickly when honey was coming in, and one-seven-hundredth-and fiftieth when it was not, I, in the interest of apiculture, requested the British Bee-Keepers' Association to provide me with a bad case, fully attested.

It arrived late, June 21, '84, with seven combs, about half pint of bees, and a queen cell—which I saw at once contained a dead larva only. Amidst crowds of bad cells, scarcely any living brood was visible. A casual counting,

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of one of the best frames gave 371 dead larvæ on one side. The odor was pronounced. The case needed confidence; it was bad indeed. With me, queenlessness presents the worst of all obstacles. No grubs, no physic, no cure! I had stipulated that the stock should have a queen, and so the difficulty was greater than I had anticipated. Early next morning, seeing the utterly disheartened condition of the poor bees, I went to a nucleus, took out a very fine Italian mother, just proved as purely fecundated, and putting her under a dome cage on a card, placed the card over the frames. The bees came up and seemed to see in her a new hope. The cage was lifted, and she was welcomed immediately. I waited three days, till she was regularly laying, giving syrup phenolated 1 in 500; and now, since I could not create bees, added two combs of brood. This step was made necessary by the fact that I required a strong hive by the time of the Congress. The bees were now shut up by a division board; but the combs put behind it, wanting introduction as the bees multiplied, smelt so badly—the weather being hot—that I several times sprayed them with water 200, phenol 1. Now I should compress the bees as much as possible, and spray the removed combs freely with water 50, phenol 1. To return. Every evening the medicated syrup was given by pouring around brood nest; but only so much as would be likely to be used, the object not being to fill the cells, but to get the food converted into bees. The smell vanished, the bees became active and earnest. The comb with 371 dead larvæ on one side was last added, and in six days I could only find five sunken caps in the whole of it. Now and again a grub took the disease, but quickly perfect immunity was the issue. No cell was uncapped, no diseased grub removed, nor the hive touched, except as described. The bees cleaned their floor and their combs; while, in four weeks and two or three days, every frame became with brood in the brightest and best possible condition. Since this, worse cases have succumbed in the same fashion. Abundant corroboration has been given from those who have tried my method, and have succeeded to their own delight, while some have failed, but the testimony is general that bees under phenol become more energetic than are those that need no treatment.

The quantities are easily managed. 1 oz. of phenol crystals (carbolic acid No. 1) will be sufficient for 40 lbs. of syrup, ¼ oz. for 10 lbs., or ¼ oz. of liquid carbolic, P. B., for 9 lbs. syrup or rather less than three quarts. The carbolic acid should be added to the syrup when the latter is cool, and equally mixed by careful stirring.

Microscopic examinations of *Bacillus alvei* shows clearly that it is subject to variations in the vigor of its growth. Sometimes the rods are longer and stouter than at others; but its colony form is quite constant, and the spores and the methods of their production are always the same. In blood serum this bacillus grows with even greater vigor than it does in the body of the bee. Variation, which will account for the disease being sometimes especially virulent, is commonly observed in micro-organisms, and forms the very basis of the system of attenuation for inoculation purposes, as practiced by Pasteur and others. Where the queen is diseased, probably no treatment will be efficacious until she has been replaced. This is a problem which seems to forbid solution, since we have no means of determining the condition of a queen until her life has been sacrificed. Those who believe that the replacement of the queen is all that is needed to effect a cure, will soon get evidence of their palpable error. Pricking a needle into a diseased larva and than touching a larva in a healthy hive with it, is, four times out of six, enough to start a vigorous attack. It could not, however, be supposed that the queen is, in such a case, the cause of the malady. Summer is, without doubt the best time for treatment, as then the bees cannot only more easily bear the necessary disturbance and the chilling, but they can be aroused to rapid brood raising, which involves the application of the remedy.

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Bags containing camphor, placed within an infected stock, have been stated to work a cure. They probably are an advantage and might be used in winter; but in my own trials, *Bacillus alvei* has gone on developing and extending its ravages, notwithstanding the presence of the camphor. The so-called coffee cure it cannot be uncharitable to regard as a mere silly whim, which does not deserve to be dignified by discussion.

From the British Bee Journal.

Carniolans.

Anent our remarks as to the true color of these bees, Mr. Blow writes to us that "the bees shade off (leaving the yellow bands at Trieste) to the genuine article up in the mountain valleys. I have had over one hundred stocks this spring and I have not one bee that shows yellow markings." He also refers us to his pamphlet, page 37, where he speaks of the bees around Trieste as a "rather mixed race, being in many cases slightly striped with yellow, quite different to those I saw later on in the mountains." He also speaks of a "Mr. Doukoupil, residing at Radmansdorf, who possesses a large apiary of Cyprian, Syrian, Ligurian and Carniolan bees"—all in the same apiary!—"and exports queens to America." Notwithstanding Mr. Blow's remonstrances, this gentleman was unable to see his error. We hope he does not export queens to England! Mr. Blow's "genuine article," then, in Carniolans, is a bee entirely free from yellow markings. Let us adhere to this, and endeavor to keep the "genuine article" pure. The Carniolan colony, of which we spoke in our last "Hints," continues crowded with bees in its large brood compartment and supers, utilizing every moment of sunshine as energetically as Cyprians, but shows no inclination to swarming, although its neighbors have been indulging the swarming instinct. So gentle, beautiful, prolific and hard-working, is the Carniolan race, that we sometimes feel inclined to wish that our entire apiary consisted of it and none other.

From the American Bee-Journal.

The North American Convention.

The North American Convention is to be held at Columbus, O., but the time is not yet decided upon. The following from Dr. A. B. Mason on the subject will explain itself:

Several months since I suggested that the place selected for the holding of the next meeting of the North American Bee-Keepers' Society be changed from Toledo to Columbus, Ohio; and after quite a good deal of correspondence with some of the members of the Society, the Executive Committee decided to take a vote of the Society in the matter.

A circular was prepared by the Committee a short time since, and a copy, with a postal card directed to me, was sent to each member of the Society by the Secretary, stating the reasons for, and desirability of, making the change, with the request that each say on the postal what his or her wish was in the matter. When all but thirteen had voted, I wrote to each of them asking them to vote. All but six have responded, and so far every vote but one has been for the change; so the next meeting of the Society will be held at Columbus, Ohio.

I have delayed giving this notice so that I might give the time of meeting, but as yet the Executive Committee has not been able to agree on the time.

Last week I sent the plan for the building for the Bee and Honey department of the Ohio Centennial Exposition at Columbus, to the architect. It is to be 36x80 feet in size, and most of the space has been applied for. Applications for space and entries close Aug. 6.

A. B. MASON,
Pres. N. A. B. K. Society.

August is the best month for Italianizing, because the queens can be purchased cheaper this month than at any other time of year, and your bees will be all good Italian workers for next season. If brood is reared plentifully this month and next the young bees will winter better, and develope more rapidly in the spring.

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Questions and Answers.

Question No. 37.—Is flat bottom foundation as good as other for brood chamber or surplus? L.

The bees do not as readily take to it as they do to the other.—J. P. H. BROWN.

It is as good for surplus, but I don't consider it as good for the brood chamber.—FRANK A. EATON.

I never used flat bottom foundation for brood chamber. Some say it is preferable for surplus, not leaving a fish bone.—H. H. FLICK.

I have had but little experience with flat bottom foundation, but from that little should say that it is just as good. I could see no difference in any way in practical results.—WILL. M. KELLOGG.
Oneida, Ill.

I have never found much difference in it. If the wax is pure and bees are getting honey either one is good enough for my bees. Bees will not work either kind when they are getting no honey to store in it.—ABBOTT L. SWINSON.

I never have used it for "brood chamber," but have used it its in sections and could see no difference in acceptance, but if I remember right they changed the bottom of cell.—H. D. CUTTING.

Never used it in brood chamber. Can see no difference in the boxes with some quality of wax, there is more difference in wax; than there is in the form of cell. Never use thicker than ten or twelve feet to the pound.—W. L. COGGSHALL.

This is a somewhat mooted question. I myself prefer the regular form. I tnink the flat bottomed can be run thinner than the other and for that reason may be preferable for surplus. Judging from what I read I doubt if there is enough difference to be noticeable between the two styles.—J. E. POND.

Question No. 30.—Something singular occurred with one swarm. Put hive on stand and next morning every bee was dead. They were wet and bloated and water was running off the board where they lay. The water looked black. What caused this? E. P.

I should think it was suffocation.—H. D. CUTTING.

I do not know, never had such a case.—J. P. H. BROWN.

The only way I could account for this is that in some way the entrance got closed and the bees, in their excitement, worried themselves to death.—H. H. FLICK.

They evidently had dysentery; there may have been several causes, which to give here would be only a guess, not knowing their management before being placed on the stand.—FRANK A. EATON.

I should say they were smothered; at least that has been the appearance and symptoms of all smothered bees I have ever seen. I have no experience by which to assign any other cause.—WILL. M. KELLOGG.
Oneida, Ill.

You are ahead of me. I never see anything of the kind and so I am unable to answer your question. They must have eaten something poison. Any dead bees that are full of watery substance, when dead, will be black.—ABBOTT L. SWINSON.

I cannot tell from the data given. It would require an examination to determine, and then one might be at fault. One great trouble with many questions is that so little is stated in them, that it is impossible to do more than merely guess, and guesses are of no value to inquirers.—J. E. POND.

I think the MAGAZINE is a bee paper everyone should have. I shall try to solicit subscriptions for you.

EDWARD COATES.
Douglas Co., Oregon.

[Many thanks. Such kind words spur us on to new endeavors.—ED.]

Bees have done finely for the past ten days, fruit bloom was abundant and the weather very favorable. Raspberries promise well, and clover never looked better, but is a little late as are the bees. WM. HOYT.

Ripley, Me., June 12, '88.

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Our Clubbing List.

We offer the following unusual Clubbing List. We consider them *first-class* periodicals, and we cannot too highly recommend them :

	Regular Price.	Price with MAGAZINE.
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Century Magazine,	4.00	4.00
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Tuttle's Photograph called "Medley of 120 Prominent Bee-Keepers,"	1.00	1.25
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New Bee-Keepers' Text Book—New Edition Just Out.

We have felt called upon to make but few alterations in the new edition as we considered it well up with the times, and by all odds the cheapest, comprehensive work on bee-keeping in the market. It is no advertising scheme, but it is just what its name implies, a *true Text Book*, one to which the apiarist may turn for sound advice at all times, with the felling that somebody's wares are not being pushed under his nose. Mr. Frank A. Eaton, of Bluffton, Ohio, a queen raiser of experience, writes as follows, regarding it :

I have carefully perused the contents of Bee-Keepers' Text Book, and find find it *jam full* of value. My criticism as to its size was simply the first glance or impression as compared with other bee books, but I but I find it contains more value than many others.

It is well to remember that Mr. Eaton ot first condemned the book owing to its size, as it is made to fit into the pocket of an ordinary sack coat, but we wrote him to read it and then report, which he did as above. What stranger testimony could there be of its true value. We could write a book as big as a dictionary without giving more solid facts than are contained in the Text Book. What bee-keepers need is *wheat* not *chaff*.

Rev. E. S. Grover, an experienced apiarist, bought a copy a copy and wrote us the following unsolicited testimonial.

PIEDMOND, S C., Feb. 14, 1888.

SIR—I have received the "Bee-Keepers' Text Book" and am well pleased with it. Indeed it is a real Text Book. It ought to be in possession of all who are learners. I prize lt highly. Many thanks.

Yours truly,

E. S GROVER.

Cloth and Gilt, $1.00. Paper, 5c. Postpaid. Address Bee- Keepers' Magazine.

THE HONEY MARKET.

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Demand good for extracted honey, which brings 5 to 8c. on arrival, according to quality. Prices of comb honey are nominal and demand very slow. We are asking 12 to 15e. in the jobbing way. There is a good demand for beeswax which brings 20 to 22c. per lb. for good to best yellow on arrival.

CHAS. F. MUTH & SON.

July 17, '88.

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R. A. BURNETT,
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July 1, 1888.

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I would like to exchange 1 vol. of *The Little Farmer*, 11 months of the *Canadian Bee Journal*, '87 8, and 1⅓ vols. of the *American Rural Home*, for 1886–7, all in good order and home bound, for Newman's *Bees and Honey* or Cook's *Manual*. Write first. W. Matthews Barnum, Angelica, N. Y.

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I WILL exchange 100 White Star Queens and introducing cages for two lbs. of Bees with untested queen. A sample cage will be sent for 5 cts. in stamps. D. C. Buck, box 276, Dundee Mich.

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To the readers of the Magazine, the Smoker formerly manufactured by its Publishers, both past and present, needs no introduction; its reputation has been well established, neither do I appear as an entire stranger to them, having for a number of years made the Smokers for the proprietors of the Magazine, who have now retired from the supply business. I will continue to make them at a greatly reduced price for the bee-keepers direct.

Large size, 3 inch barrel, $1.15; former price, $1.50,
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By mail, add 20 cents for postage.

Address, *A. E. CUNKEY.*
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Also dealer in Bees, Queens and Bee-Keepers' Supplies.

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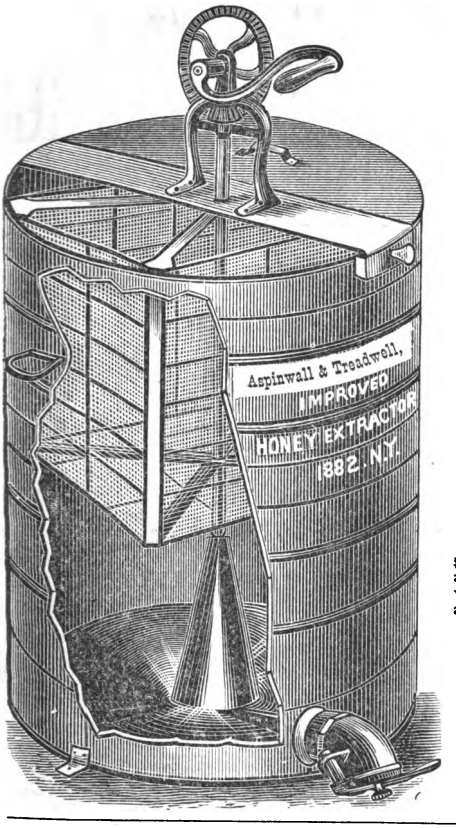

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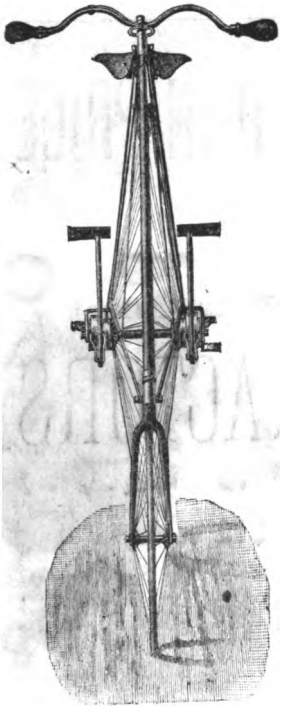

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THE BEE-KEEPERS' MAGAZINE.

Devoted to Bee Culture

JOHN ASPINWALL,
EDITOR AND PROPRIETOR,
BARRYTOWN-ON-HUDSON,
NEW YORK.

H. Gilmour, Inc. N.Y.
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THE BEE-KEEPERS' MAGAZINE.

50 CENTS PER YEAR.

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BARRYTOWN, SEPTEMBER, 1888.

EDITORIALS, &c.

INSTRUCTIONS TO CORRESPONDENTS.

Correspondents writing matter for publication will confer a favor on the editor by writing on only one side of the paper, and giving their full name and address. The latter will be given in the MAGAZINE, unless there is a request to the contrary. Kindly write matter for the MAGAZINE on a separate sheet from business communications, so that we may not have to mutilate business letters to get at the literary matter. Rejected manuscript cannot be returned unless stamps are forwarded for that purpose.

OWING to severe illness in the family of the editor, the MAGAZINE appears late this month. He hopes the readers will pardon the delay.

THAT ADULTERATED HONEY.

THE MAGAZINE is not desirous of carrying on a controversy for any other purpose but to bring the truth to light, and set matters correctly before the bee world. On page 108 of the MAGAZINE we claimed that Mr. Newman as well as Mr. Root had called the adulterators of honey of New York "honorable men." We were in error, Mr. Root called them so, but Mr. Newman copied the article in his paper and made no adverse comment, and it is to be presumed he concurred in the opinion therein expressed. Mr. Newman indignantly denies having called them honorable men. We are delighted to think he would not call them such. If he thinks them *not* honorable why not denounce them as adulterators instead of trying to prove the work of a distinguished chemist a farce. If Mr. Newman considers these men dishonorable (he spurns the accusation of calling them honorable) why does he permit a card from one of them to appear in his *editorial* column in which this adulterator anounces his desire to see the readers of the *American Bee Journal* at his warehouse in New York? And why does Mr. Newman permit two of these adulterating firms to furnish him honey and wax quotations which he publishes over their name and address each week? The whole controversy centres on whether we prefer to believe these dealers honest, *all proof to contrary notwithstanding*, or are we to believe the testimony of a chemist of undoubted repute, who thoroughly understands his business. Mr. Root and Mr. Newman seem to believe honey cannot be analyzed correctly so as to show adulteration. All chemists will tell you that the adulteration of honey can be readily detected in amounts even less than 5 per cent. Mr. Root and Mr. Newman are not chemists, and we believe they are neither of them conversant with chemistry. The question then resolves itself into the following: "Will you accept their opinion, or the

positive, disinterested testimony of a chemist of undoubted reputation?" We accept the latter. Such being the case, when this chemist finds that Messrs. McCaul and Hildreth and Messrs. F. G. Stromeyer & Co. are placing outrageously adulterated honey on the market, we condemn them most heartily. Only one bottle of Thurber, Whyland & Co.'s honey was analyzed, and that was found pure. From this fact we are not entirely safe in saying they are placing no adulterated honey on the market, but the evidence points in that direction. The chemist, in question, found the honey put up by a number of bee-keepers *perfectly pure*. Now if analysis is unreliable, why were not some of these found adulterated? How is it that the honey, put up by the followers in the footstep of the miserable Hoge, pronounced all adulterated? Do you think this a mere matter of chance? If the analysis of honey is not to be relied on, how very singular that this chemist should just hit on this natural division, without exception. The whole trouble, both here and abroad, rests on the fact that our brother editors glanced at the list of honeys analyzed, and seeing "Comb Honey" in the list, *blindly condemned the whole business without stopping to read that this was what was printed on the label, while it* WAS NOT COMB HONEY THAT WAS ANALYZED, but instead, the contents of the jar which SURROUNDED a little slip of pure comb honey put in the jar to give the glucose the proper flavor. As we remarked in a former number, the label was a lie and the contents a fraud. If Messrs. Newman and Root propose to uphold the rascals who place such outrageous trash on the honey market, we exceedingly regret it, for they will be taking a step against the interests of the bee-keepers of America. The testimony of the chemist in the present case is convincing to us, and to discredit it means to take sides with the adulterators. The letter from Commissioner Newton was omitted in our former issue. We publish it in this issue. We call it to the attention of Mr. Newman and Mr. Root.

THE NEW YORK STATE FAIR.

At the request of the executive committee of the New York State Agricultural Society, the Eastern New York Bee-Keepers' Association prepared a schedule of prizes, for bees and honey. The editor of the MAGAZINE was chairman of the committe having the matter in charge, and he is delighted to announce that the schedule recommended by that committee, has been accepted by the Fair Association, and is embodied in their premium list for this year. The following are the prizes offered:

SEC. 32. BEES, HONEY, APIARIAN SUPPLIES.

	1st Prize.	*2d Prize.*
Italian bees, in single comb observatory hive	$10 00	$5 00
Black bees, in single comb observatory hive	10 00	5 00
Best exhibit of different races of bees	20 00	10 00
Comb honey, not less than 20 pounds	10 00	5 00
Best display comb honey	10 00	5 00
Extracted honey, not less than 20 pounds	10 00	5 00
Display of honey by lady apiarist	10 00	5 00
Bees wax, 5 pounds or over	5 00	3 00
Best instructive exhibit, showing economy of the hive, collection of honey, plants, bee-keeping implements and supplies	20 00	10 00

In bees, purity of race and beauty of exhibit to control. Bees must not be allowed to fly in exhibition hours.

These are generous prizes, and should received the instant recognition they deserve, by a grand exhibit of bees, honey and apiarian supplies at Elmira, N. Y. Mr. Woodward, of Albany, N. Y., is secretary.

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EXHIBIT YOUR HONEY AT FAIRS.

A railroad train reaches its destination, thanks, among other things, to the two rails it runs on. These two give it stability, so that it shall not topple over into the ditch and become a miserable wreck. So too in bee-keeping for profit, two rails must be used in order to reach the destination; that depot called "hard cash." Number one of the rails is called "a honey crop," and number two "a good market." Without the presence of both of these rails, the bee-keeper would soon land in the ditch, with a wrecked business. The question now before the bee-keepers should be to see that rail number two is well laid on ties that will bind it to number one, making a safe road for him to travel on to Hard Cash Station and financial success. Every time the bee-keeper finds a new customer for his honey near home he drives a spike holding this rail firm and strong. The ties that bind the two rails together may be all labeled honesty and thrift.

One of the best ways to drive a whole row of spikes is to exhibit your honey at any county or State fair within your reach. The several States are having fairs this fall where thousands will go to see the sights, and whatever else there may be exhibited the two articles that seem always to attract attention are a stone crusher in operation and bees in an observatory hive. The first because it makes such a racket and the other because they can make such a racket when they take it into their heads to unfold their "painful tail."

Inviting displays of comb and extracted honey cannot be resisted. Particularly should attention be paid to presenting your extracted honey in the most attractive manner, that the public may be tempted to use this form of honey instead of the wretched glucose syrups with which the market is flooded.

For the Bee-Keepers' Magazine.

MOLLY HEATH'S VENTURE.

A Serial Story.

BY JULIA ALLYN.

PART THIRD.

(Continued.)

The lapse of a period of two years brings about marked changes oftentimes, both in the history of individuals and communities.

That space of time has passed since we last looked in upon Rosecraft, and though the finger of time has touched lightly and caressingly the inmates of the Heath cottage, it has dealt more harshly with the poor laboring classes of Marston.

In the Heath family a decided progress has been made. Rob has finished his four years in the classical department of the high school, and has now the place of honor in his class, and the prize of a gold eagle each year. He has already successfully passed the examination, which will enable him to enter a University in a neighboring town, in September. This summer he intends to devote most of his time to work in the apiary, which now contains fifty colonies, hoping to leave it in the fall in such a prosperous condition that the other members of the firm can carry it safely through the winter months.

Tom, too, has been very studious the past two years, and has finished the English course and already entered the office of a Mr. Barry, a talented architect and civil engineer. His skill in drawing is aiding him greatly in making good progress in his chosen occupation. His evenings, however, and all spare hours he devotes to bee-keeping, and Teddy, who is now a stout lad of nine years, is much interested in the carpenter work, and also of great assistance in storing and selling the honey.

Nan has been away from home a couple of years, at the academy where Molly completed her education, and has now a high rank in her studies.

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Her vacations have been spent at her Uncle John's, where she has kept up her knowledge of bee culture. The rest of the family have missed her greatly, and now the time for her return having come, they are gathered on the porch awaiting her arrival. A carriage stops at the gate, and a tall, graceful young lady alights. Can this be little Nan? Indeed, as she comes up the steps and greets one after another of the assembled group, we can scarcely recognize in this dignified, beautiful young woman, the shy little girl of former times, and no one appears to mark the change with greater surprise than Ned Stearns, who, but just returned from sojourning abroad and accustomed to meet many fine ladies in the fashionable circles he has frequented, acknowledges to himself that Nan's face and figure are distinguished by a beauty and grace which rival even Molly's charms, which up to this time have been his highest ideal of loveliness.

"Why, Nan dear, how you have grown. I cannot call you my little daughter any longer," exclaims Mrs. Heath.

"Well, well! now we have two fine young ladies in the family," said Tom. "I am afraid the bees won't know you, Nan. Molly here is neglecting them for mission work, and now I suppose you will be so intellectual that you will forget to look after them."

"Never fear, dear Tom. We owe too much to the bees to ever forget them. Had it not been for the bee-lecture kind Mr. Dyer might never have become interested in us and contributed so materially to our happiness and welfare."

"Mr. Dyer is a dear old patron," said the enthusiastic Tom, "some day I will build him a fine house with an apiary attached; provided I succeed in my business."

"He has a fine house in California, already, and a larger apiary than you ever saw," said Ned, "and he is going to ask us all out to visit him, sometime."

"Here comes Mr. Piersons," said Teddy. "Nan, see if he remembers you. He is here about all his spare time, so you must be friendly to him."

"Molly's 'the friend indeed,' because she's 'the friend in need,'" said Tom.

"I fear this mission work is affecting your health, Molly," said Ned in an undertone. "I ever think the bee business is the preferable one of the two. However, you look rosy enough just at this moment."

Rev. Edward Pierson, the fine looking young clergyman, was greeted heartily, being a great favorite with all. He took Nan for a stranger at first, and when she spoke to him, could not conceal his astonishment at her altered appearance, but soon rallied from his surprise and expressed the hope that she would also lend her aid in the charitable work planned for the summer months.

The past season had been a very depressing one for the poor. Most of the factories had shut down, and the woolen mill was working on half time, and a large proportion of the operatives were idle.

An industrial school, with tuition free, had been opened, which was principally supported by Mr. Fry and Mr. Dyer, and a large number of the younger members of the mill force attended it. Some of the men who had families depending on them had become discouraged, and as is too often the case, had sought consolation from their troubles in intoxicating drink.

A half dozen or so evil disposed men had, as ring leaders, conspired together to rouse the others against the mill owners, and two or three incendiary fires had been set in the vicinity of the mills, and only by maintaining a strong police force could order and quiet be, at one time, maintained.

Molly's heart ached for the poor sufferers, and her hands and brains were busied in inventing means to give employment and relief to the families who were most destitute.

Two hours of every forenoon were spent by her at the mission hall, where she and half a dozen other young ladies, members of the Busy Bee's Society, had

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formed a sewing class for women and girls.

With the funds of the society they had purchased large quantities of material, and were instructing the mothers and daughters of the laboring men in cutting out and making garments of every description, which were given to the families in need of them.

A soup kitchen had also been opened where a good meal was furnished once a day to those who otherwise would have gone hungry.

Mr. Pierson and Mr. Scott, the orthodox minister, were kept busy visiting the distressed families, and had won their way among them by their kind considerate manner, and the new plans they were constantly forming for their benefit. Many of the children had been brought into the Sunday schools, and the young men who were idle had found the reading room at the Young men's Christian Association so attractive, that instead of lounging, as formerly, about the stores and corners of the street, they had formed the habit of assembling evenings in the pleasant hall and listening to the lively debates and reading interesting books. The subject of labor and capital, and topics in Political Economy, which related closely to the practical questions agitating the community, were brought up, and the rights of the working man, as well as those of the capitalist, were considered, and many who had been led by ignorant leaders to believe in strikes as helping on the cause of labor were converted to other views, and saw that steady work with fair pay was preferable to long months of idleness and then but slightly advanced wages.

At the same time it was argued that co-operation on the part of the capitalist was the most honorable way of dealing with his employees.

As Molly entered into the problems of the time, and saw them worked out under her personal observation, her mind and heart became enlarged and she felt more than ever the necessity of advocating the doctrine of woman's self helpfulness.

The apiary had continued to prosper, and the income from it had doubled each year, and the necessities of the times had decided the firm to use a tenth of the sum accummulated for charitable purposes, and with this private fund much good had been accomplished.

John and James Graham were often at Rosecroft, and Tom had taken pains to initiate them into the mysteries of bee-keeping, and had lent them books on the subject to read, and whenever any extra help was needed, as in swarming time, had employed them to aid. Mary Graham and Bessie too, in Nan's absence, were of great assistance to Molly in putting up the extracted honey, and they too had become much interested in bee literature.

Quite a number of the mill operatives, during their forced idleness, had availed themselves of the offer of a Land Company, recently established in Marston, and by the payment of a small sum of money down, the rest to be paid in installments, had each become proprietors of a small cottage house with garden lot adjoining, situated about a mile from the center of the town. Here they busied themselves in raising vegetables and small fruits sufficient to supply the needs of their own families and in a few instances enough to enable them to dispose of some to their former friends and neighbors.

Mr. Frank Graham had been one of the first to move into the cottage district, and Rob and Tom had influenced him to add bee-keeping to the garden industry, and had furnished him with a couple of well stocked hives with which to begin his apiary. Others, wishing to follow his example, had applied at Rosecroft and been permitted to take colonies on shares, and to be paid for at the close of the season. In this way the idea of co-operation was being worked out on a small scale, to be sure, but the benefit to the community was considerable in arousing and maintaining a spirit of independence and self-respect.

Ned Stearns, on his departure for Europe, had stipulated for a letter a week, and when Molly had promised to write him about "bees" he had replied "all right, provided you inter-

sperse the business part with honeyed phrases."

The troublous times, which had continued to grow darker and darker, had, for a season, driven from Molly's attention all thoughts but how best to employ her time in helping others. Indeed, the letters received from Ned week by week, telling of the pleasures and frivolities in which his leisure hours were spent, which at another time might have interested her under existing circumstances, jarred upon her sensitive nature and unconsciously she compared the life he lived with that of the whole-souled, noble young clergyman, who thought no labor too arduous if he might benefit those about him and who ever considered his own happiness as secondary to the welfare of others.

Brought thus daily in contact with an example of joyous and hearty self forgetfulness at first, a feeling of respect, and then gradually a warmer emotion filled her breast, and at length, to aid the rector in his labors, became her greatest pleasure.

It was at this juncture that Ned returned, and at once, under his supervision, the new machinery was placed in the mill and a largely increased force of operatives employed. Those who had been for so long a time idle, but were now again at work, blessed Ned with great volubility and proclaimed him their greatest benefactor, but Molly felt, what she hardly dared acknowledge to herself, that the true hero was the one who had stood by the sufferers in their time of greatest need, and to him, in spite of herself, her allegiance turned.

Ned, in the excitement of home coming and amidst the press of business, had perceived no change in Molly's manner towards him, who, with a woman's tact had allowed him no suitable opportunity to speak of anything but general matters.

Teddy's remark, Tom's nonsence and Molly's blushing face at Mr. Pierson's appearance on the evening of Nan's return had caused him, at the time, a feeling of jealous surprise, but other matters of interest being constantly brought forward and his mind being worried with the unsettled condition of business, he delayed from week to week to find a favorable opportunity to ask Molly's accepance of the engagement ring which he had obtained in Paris, and which was a plain circle of gold surmounted by a crest in the form of an Italian bee with diamond eyes.

During the summer Gertrude Stearns and Jim Travers were again guests at Mrs. Fry's, but Molly found little time to accompany them on their pleasure trips, sending Nan as her substitute, who had become a prime favorite with all, and especially so with Ned's aunt, who was always cheered by her presence and who kept her as visitor for weeks at a time, declaring that she was like sunshine in the house.

(To be continued.)

For the Bee-Keepers' Magazine.

Candied Comb Honey.

WILL. M. KELLOGG.

I can crack that "knotty problem" for J. S. L. a great deal better, to my thinking, than the editor did. By placing the candied comb in water you lose the honey, and feeding honey to bees is usually bad work, as it sets them crazy. I had about twenty cases of six inch extracting combs that I had to leave for some time for lack of time and storage room, and when I came to extract it, I found it candied solid. It was fine, clean, white comb, filled with clover honey, and I hated to lose it. I cut the combs out of the frames, laid one at a time on a clean smooth board and cut it up fine with a chopping knife, then placed it in a large tin can over a slow fire, and carefully melted comb, honey and all. When it was thoroughly melted I set the can to one side till cold; then the wax having risen to the top, I peeled it off of the honey and threw it into the wax extractor; rewarmed and strained the honey, and I had several pounds of nice wax, and over three hundred pounds of as fine, thick, honey as an expert ever smacked his lips over. So I received over $50 for my batch of candied comb

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honey. It takes but a small outlay to refill the empty frames with foundation, while on the other plan I would virtually have wasted it in trying to feed it to the bees, for besides the bother of evaporating any great quantity, I consider the feeding of liquid honey to bees as dangerous to peace and comfort, from its making the bees ravenous and cross.

Oneida, Ill.

[The editor "acknowledges the corn," regarding the method of separating the granulated honey from the wax, but he is not in accord with regard to the use of honey as a feed. There can be no doubt that the feeding of honey is attended with certain disadvantages, but the practice of feeding anything else we believe to be pernicious to the interests of the bee-keepers as a whole, particularly in this country, where it is carried on to such a large extent. In Mr. Damaree's article, as well as that of Mr. Chalmers, published in this number, the fear of mixing the sugar feed with the honey that is sold, is spoken of. This danger is one too important to be overlooked. If your customers once get the idea, you *feed* sugar to your bees, whether you permit it to get mixed with the honey or not, they will at once put it down as a fact that your honey is half sugar. We all know what that means. These customers will say, we prefer to add the sugar ourselves, and they will buy less of your honey, if *they buy any*.—ED.]

Our Comment Sustained.

STATE OF NEW JERSEY.
DAIRY COMMISSIONER,
PATERSON, N, J., June 14, 1888.

Editor Bee-Keepers' Magazine:

Your editorial comment on the article in *British Bee Journal* is correct, as no comb honey was found adulterated. The heading to my article is "Strained Honey," and all the specimens were of that kind. The samples labled on the cans and jars "Choice Comb Honey" were merely small pieces of comb floating in a sea of glucose.

I see that *Gleanings* makes the same mistake, and the editor of that journal should correct his misstatement.

Truly yours,
WM. K. NEWTON,
Commissioner.

[It is unfortunate that your work is discredited in some quarters. We can only believe it is through ignorance of the facts rather than through a desire to cover up adulteration.—ED.]

From the British Bee Journal.

A Toad Story.

Our apiary adjoins a meadow, still unmown, which abounds in toads, a wire fence alone separating the two. Late in the summer evening toads may be seen crawling around the hives, but it never struck us that they were intent upon devouring bees. Our hives are placed on stands about eighteen inches from the ground, and in front of our strongest colonies we place a board, sloping from the ground upwards to the hive entrance, for the convenience of heavily laden bees returning homewards. While lazily watching beside an Italian colony thus provided a few mornings ago after a heavy shower, admiring the eagerness of the bees for work while the brief sunshine lasted, a toad appeared on the scene, and most deliberately, step by step, crawled up the board to the entrance, and there took up his station, surrounded by departing and returning bees. Flies occasionally settled on the creature's back, but were dismissed *instanter* by a quick motion of its hinder claws. Several bees of inquiring minds were similarly treated also. At length one, more inquisitive than its fellows, carefully and minutely examined the fore-paw of the toad, but, alas! as it arose on wing from the scrutiny, snap went the huge jaw of the toad, and poor bee disappeared down the capacious throat. All this was done quick as a flash of lightning, indeed, so quick that the eye

could scarcely follow the motion. The operation was repeated again and again by the toad, till at last realizing that the *Toad* might prove more destructive of bee-life than the *Tit*, we interfered, and tying the toad securely in the position it had voluntarily assumed, we applied to the hive sundry kicks and shakes, with the object of infuriating the bees to attack their assailant. But no, although thousands of angry bees surrounded the marauder, not one dared to attack, not a single lance was unsheathed! So great seemed the dread of the bees that not one alighted upon the toad, notwithstanding its struggles to free itself from the bands by which it was bound. Following Virgil's advice respecting a 'bad king'—*dede neci*—we beheaded and dissected the toad and discovered in his capacious maw thirteen of our beautiful Italian bees, which had all been swallowed alive during less time than it has taken us to write the story. Moral: Don't place boards in front of your hives for the convenience of the bees (toads?), and don't adopt the American plan of placing your hives upon the ground. Why cannot toads content themselves by picking up the *dead* bees, as 'tits' and sparrows are *said*, by their apologists, to do? No, these and many another enemy of the bees prefer the *living* to the *dead*.

From the Farmer's Advocate.

Bee Stings.

R. F. HOLTERMANN.

The beginner is perhaps troubled with his bees being cross, and a hint as to how to prevent being stung will doubtless be appreciated. First and foremost bees object to offensive odors, one's person should be clean and sweet; if overheated you had better not go near the bees, they will not only be more apt to sting you but the sting will be more painful. You should have a light straw hat, and cotton or linen clothing; woolly clothing having fuz on it they object to, and you are liable to get stung ten times when wearing it to once when dressed in smooth garments. Next, let your movements be deliberate and do not appear to fear the bees; quick, nervous movements the bees resent. If a bee is troublesome and you wish to retreat, put up your hands quietly and shield your face, and as quietly retreat; if you throw up your hands wildly and run, you may be sure you will lose the race and the bee leave his mark. In handling prevent crushing bees, if you crush a bee she gives off the poisonous smell and this irritates her companions and they will become cross. Do not jar the hive, this irritates them. These are the secrets in successful handling. Every worker bee is liable to sting any one, the difference is as given above and in the disposition of the bee. Certain strains of hybrids are very cross; do not breed such strains.

The next thing is what to do when you do get stung. A bee when it stings leaves the scent of poison upon the spot, and if left other bees are liable to attack you. The sting, which is always left in your person, is so constructed that it works in deeper, and the setting of the muscles about the poison bag which is attached to the sting helps to force the poison into the wound, therefore scrape with your nail sideways the sting away. Do this the moment after you are stung, the sooner the better. After removing the sting, many just give the spot a good smoking, which deadens the poison scent, or if you wish you may wash the spot. Many things are recommended as an antidote to apply to the wound, such as moistened baking powder, blueing and ammonia. Some find one the best, others another; ammonia is perhaps as good as any with most. Apply it at once but do not rub the spot. Very rarely a sting is dangerous. Should anyone have bad symptoms following, such as torpidity and the like, ammonia and water should be taken internally, but be careful not to give it strong enough to choke the patient. Cold water may be applied externally. If horses or other stock on the farm are dangerously stung apply blankets and cold water. Fatal results from bee stings are happily far more rare than attacks from dogs and stock on the farm.

From the Bee-Keeper's Review.

Feeding Back.

R. L. TAYLOR.

Whether feeding back to secure the completion of partly filled section pays, in the long run, I shall not now attempt to decide, but I shall content myself with suggesting three or four points which must be maturely considered before the question can be rightly determined.

First, the honey thus produced is never, I think, of the finest quality. I always imagine it to have a flavor foreign to comb honey produced in the ordinary way; and, at least, it candies readily, which alone is likely to place it among the lower grades of honey. Secondly, when it becomes noised abroad that comb honey is produced by feeding the bees, consumers will be startled, and the markets will be affected more or less; and the sale of candied comb honey will have even greater effect upon the market. The inexperienced will buy it unawares and the purchase by them of no more honey of any kind would be a very natural result. Thirdly, to be a success, feeding-back must be done in the interval between basswood and fall flowers, when, of all the year, the weather and the bees are the most trying—a combination which makes the labor very undesirable. Fourthly, if foul brood should find a lodgment in an apiary, and remain for a time undiscovered by the apiarist, nothing else would spread it so rapidly and effectively as feeding back.

Were it not for these troublesome matters, feeding back to make partly filled sections available for the market, would no doubt, be profitable. To test the matter somewhat, three years since, I fed one colony extracted honey sufficient to complete three cases of sections—not sections partly filled but new sections with—foundation. When completed I found I had fed 124 pounds and had in three cases 78 pounds of comb honey in fine shape. There was not a pound of honey in the brood chamber either when the experiment was begun or when it ended. In this case there was perhaps profit enough, as markets usually are, to pay for the labor involved besides leaving the colony in greatly improved condition.

Now, suppose I had varied this experiment by taking six cases partly filled, containing, say 60 pounds of honey. As the foundation would be well drawn out, and consequently the honey more rapidly stored, I estimate that the 124 pounds would have been sufficient to complete the cases and turn out at least 150 pounds of well-capped comb honey. We may approximate the profit by comparing the expenses with the result. The 60 pounds of unfinished sections would be worth not more than the extracted honey, which being added makes 184 pounds, at say eight cents, giving an expense of $14.72, which, taken from $24, the value of 150 pounds of comb honey at sixteen cents, leaves a profit of $9.28, or sixty-three per cent. The improved condition of the bees and the increased sableness of the product may be considered an equivalent for the necessary labor.

To insure the largest success I have found that the following several particulars must be faithfully observed:

First—If separators are not used, it will not do to put the unfinished sections into cases haphazard. The comb of some must be trimmed and sections equally worked out must face each other in order to secure shapely sections of honey.

Secondly—Fairly strong colonies of proper characteristics must be selected for the work. Italians will not do well. So far as my experience goes, a cross between the Italian and the black, with the blood of the latter predominating, rather than that of the former, is best.

Thirdly—The brood chamber must be contracted to the capacity of five L. frames.

Fourthly—The work must be done during warm weather and should be undertaken promptly on the cessation of the flow from white clover and basswood.

Fifthly—The feeders must be kept constantly supplied with honey, which,

I think, should not be diluted, but fed as it comes from the extractor.

The feeders should be capacious, the one known as Heddon's is far the best—and are to be placed immediately above the sections.

By observing these hints and the dictates of sound common sense any one may, I think, attain fair success; but as I have intimated the work is not a pleasant one, and it is well worthy of consideration whether it would not be better to keep a few more colonies and thereby obtain equal results with less of wearing labor.

Lapeer, Mich., June 22, '88.

A Fine Crop of Buckwheat.

Editor Bee-Keepers' Magazine:

By chance I recently secured a copy of the MAGAZINE of this year, of our editor, and was very much surprised to see what a fine bee paper we had right here in our State. Although I have been in the bee business for years, yet this is the first I had seen of the MAGAZINE since you became its editor. Well, you are certainly doing wonderfully, and I hope you may continue in your good work.

It has been, until now, one of the poorest seasons known in twenty years. Our spring was very late, the weather was so cold and rainy that it was almost impossible to get the bees in any condition. The fruit bloom was abundant, but the weather continued so cold and rainy that the bees could not work on it much. When raspberries were in bloom it was about the same. White clover blossomed finely, but did not yield much honey—no surplus, but enough to carry them through the winter. Basswood was almost an entire failure. Buckwheat is now in full bloom, and the bees are a booming. I have already extracted fifty pounds per colony from it, and I think I shall be able to get as much more. One thing, my courage is good yet, and am still hoping. LESLIE STEWART.

Jefferson, N. Y., Aug. 19, '88.

Golden rod promises to be a good source of honey supply, in many localities, this fall.

From the Bee-Keepers' Review.

Feeding Back Extracted Honey to Secure the Completion of Unfinished Sections.

Ever since engaging in the production of comb honey we have been practicing the above. We have fed, during the past five years, at least 13,000 pounds of extracted honey; but our success has been so varied that we have never felt like encouraging the practice. One year, with certain colonies, we would meet with splendid success as to be greatly encouraged, while the results of the next year, or the performances of certain colonies, would, perhaps, lead us to declare that we were done with "feeding back." But, when the next season rolled around, and the close of the linden harvest found us with perhaps 2,000 unfinished sections on hand, and we sat down and figured up how much they would be worth if completed, we felt, as Dr. Miller once expressed it at a Chicago convention, that it might pay to feed to secure the completion of nearly finished sections even though the feeding of four or five pounds of honey increase the weight of the sections only one pound. Did we not consider drawn comb of considerable value in getting the bees started in the sections in the spring, we should unhesitatingly pronounce in favor of feeding to secure the completion of unfinished sections. That is, this would be our decision so far as the management of our own apiary is concerned; but is does not follow that this decision would be the proper one at which all bee-keepers should arrive; although it would seem that there is one class that would be glad to so decide, and that is the one that finds the use of drawn comb in sections so very objectionable. So much by way of introduction, and now, for the benefit of those who, for any reason, may wish to practice feeding back, we will tell what we have learned in feeding back the 13,000 pounds of honey. Perhaps the best way will be to tell exactly how we would conduct the operation, but first allow us to say that the feeding of honey for the purpose of having it

stored in sections, is a distinct branch of bee-keeping—as much so as that o rearing queens for the market—and there are many things connected with it that can be learned by experience only, but the following hints may help some :

As soon as we see that the basswood harvest is drawing to a close, we remove all the sections from the hives, look them over, take out the finished ones, sort the unfinished ones into three grades, viz.: almost finished, half done and just commenced. The cases containing the first two grades are then placed upon the hives, one case upon a hive, and allowed to remain until the bees have taken possession of them. then comes the task of selecting the colonies that are to do the work; and, by the way, this is a most important point, as upon the proper selection depends our success. First the colonies must be strong; next they must possess young queens, preferably, those of the current year, although this is not imperative ; and last, but by no means least, we would have the bees simon pure blacks. Hybrids are the next best, while, as a rule, Italians do very poor work in this line. Keeping in view these points, we select one-half as many colonies as we have cases of unfinished sections upon the hives, and to these colonies we transfer the cases —sections, bees and all—putting two cases upon each hive. We have never experienced the least trouble in any respect, by thus mixing up the bees; while we secure populous colonies by so doing. If the brood nests are not already contracted, we contract them The greater the contraction the more satisfactory will be the results so far as the work in the sections is concerned, but, if carried too far it will materially weaken the colonies, by curtailing the production of brood. We have frequently contracted the brood-nest to only three L. combs, and these three combs, when we were through feeding. would be three solid sheets of brood ; but, all things considered, we prefer to contract the brood-nest to about the capacity of five L. combs. There is also one other point that must not be neglected, and that is, the brood combs must not be old and black, otherwise the combs in the sections will become travel-stained unless removed very promptly upon their completion. The newer the combs in the brood-nest the better.

When honey is brought in from the fields it is carried up into sections, comes from below ; when a feeder is placed above the sections then the supply comes from above. In both cases the sections in which the work is the least advanced should be placed nearest to the source of supply. Thus it will be seen that, in feeding back, we place next to the brood nest the sections that are almost finished, and above them the grade that are about one-half completed. The feeder used is the Heddon, which is exactly the size of the top of the hive. His new feeder is unexcelled for this purpose, as the bees take down the feed from both sides. This might not seem important, but it is, and for this reason : when the feed is carried upon one side the sections upon this side are completed first, while they are finished up very evenly all over the case when the feed is carried down from both sides. The bees seem to be able to handle the honey to better advantage when it is thinned somewhat ; say one quart of water to ten pounds of honey. We heat ten quarts of water over an oil stove, until it boils ; then mix it with one hundred pounds of honey, stir it up well and it is ready for use. We feed as fast as the bees will take it. We keep close watch of the sections in the lower cases, and when we find one in which all, or nearly all, of the sections are completed, off it comes ; and the case above it is placed next to the hive, and above this case is placed a case of sections brought from the honey house : one containing sections of the third grade, that is, those in which the bees have made the least progress. We continue to bring in the cases of completed sections as fast as they are finished, replacing them with unfinished ones taken from the honey house. When the stock of the latter is exhausted, we are ready to begin to reduce the number of colonies

upon which we are feeding back, which is done as fast as the sections are completed. During all this time, since the feeding was commenced, we have been watching each colony, and jotting down upon the hive cover, its characteristics, and in reducing the number of colonies, we, of course, reject those that have worked in the least satisfactory manner. We continue to keep two cases upon each hive, and as the colonies work with greatly varying rapidity, there is no difficulty, by changing about the cases, to keep next to the brood nest those sections that are the nearest completion. In gathering the sections together upon fewer hives we always take bees and all, thus we are continually strengthening the colonies upon which we are feeding-back. It is folly to expect the bees to finish up all the sections upon a hive. Even though the feeding be continued, the sections will not be completed in a satisfactory manner. So long as the feeding is continued the bees act as though they reasoned something like this: "We must make the cells as deep as possible, and delay the capping until the last moment, in order to make room for all the honey that we can; and, if there isn't cells enough, we must build more, even if it be in those cramped-up little places between the tiers of cases." After the combs are drawn out to full length, filled with honey and nearly sealed, we have secured better results by giving the bees no feed for three or four days; then giving them a light feed, and omitting the feeding for several days. The bees then behave as though they considered the harvest over and ended. They seal up most of the cells, and from those that they do not seal they remove the honey. But there is a much better way of managing this part of the business. When the sections are nearly all finished, we put them upon as few hives as possible, placing two cases upon a hive; and then upon each hive, above the cases of nearly completed sections we place a case of sections filled with foundation. The bees proceed at once to draw out the foundation and fill it with honey, and this additional storing room appears to bring about a feeling that there is no further necessity for holding open the cells below, and they are sealed forthwith. When the two lower cases are completed, the upper case will, perhaps, be found one-half finished, and these upper cases may be gathered together, bees and all, and placed, two upon each hive, over those colonies that show the greatest aptitude for this kind of work, and the feeding continued until the sections are almost completed, when it will again be necessary to place a case of sections containing foundation upon each hive. We have continued this work until, at last, all the sections were upon one hive and the sections all completed except the last added to the top. After bees have been fed awhile, they secrete very large quantities of wax. The little flakes of it can be seen between the scales of the abdomen, and, unless allowed to build comb, the bees will plaster with wax the woodwork of the sections, the inside of the feeeders, cases, etc. The moral is, allow them to build comb. Have a row or two rows of sections in the upper case filled with starters only; thus there is secured, in the shape of comb, what would otherwise be wasted. Although we cannot control the temperature, it may be well to know that the hotter the weather the more rapid and satisfactory will be the work of the bees when we are "feeding-back."

There, friends, we have told you all that we know about "feeding-back;" or, at least, all that we can think of just at present; and now will you have the kindness to tell us what you know about it, and allow us to print it all together in the July *Review*, thus making it the special subject of discussion in that issue? Perhaps some of you would like to ask some questions in regard to the matter. If so, all right, send them on, and we will answer them if we can, or elsc get someone to answer them.

About the best thing that can be used in our smokers for our bees is corn cobs, a little of which should be pounded on starting the fire.

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Beginners' Department.

MOTTO—"Courage and Perseverance."

Well, beginners, how fares it with you? How is your honey crop? We have not heard a word from you, and presume from this fact that your "luck" has not been very good.

The fall flow of honey is coming in, after which comes the period of rest for yourselves and your bees.

If you have extracted honey in comb near the brood chamber of your hives, it would be well to see that each hive has a store of honey for winter use. It is claimed by many that the fall honey is apt to cause dysentery among the bees in the spring.

DYSENTERY in bees is a disease causing them to void a nasty, brownish, liquid substance in which is found a fungoid growth. This growth is plant-like in nature, growing and ever spreading until the poor bee dies from sheer exhaustion.

A few brood combs full of honey are very valuable in the spring for keeping your bees from starving. Therefore lay aside at least one full comb for each hive, to use for the purpose spoken of. If they are hung on horizontal wires with an inch space between each comb, in a room where daylight can enter readily, you will be troubled by neither mice, nor wax moths.

Each hive should have at least thirty pounds of honey in the brood chamber, and this amount should all be in six combs. Remember six combs are enough to winter on, and no more should be allowed, as the extra space is not filled with bees, but has to be heated just the same to keep the colony from freezing. I speak here more particulary of wintering on the summer stands, *i. e.*, out-doors.

I will not speak in this number of the preparation for winter any further, as October will be time enough to talk of such matters; it is important, however, that you now turn attention to the winter's supply of honey as already spoken of. If there seems no prospect of securing the amount of honey necessary for successful wintering, it is advisable to buy some extracted honey and feed it to the bees.

Foul Brood is the most terrible disease the honey-bee is heir to, and the greatest care should be taken that it never enters the precincts of your apiary. It is a disease that causes the brood to die and become maloderous to a shocking degree.

On opening, and sometimes on passing a hive, the stench turns one sick.

This disease is a Bacilus (a microscopic organism) which develops rapidly and spreads from bee to bee, and from hive to hive, to the destruction of your whole apiary. It is often communicated by bees eating honey containing these bacili. All this about foul brood is told you that you may be extra careful as to the apiary from which your feed comes. Should you not be perfectly certain, proceed as follows: Take a large kettle and fill it partly full of water. In this immerse another vessel, one as large as possible, and fill it with the honey you are going to feed; place them on a stove and bring all to the boiling point and allow to boil ten minutes; put the honey away to cool and feed when needed. Be sure and not burn the honey. Freezing will not destroy the germs of foul brood, but boiling kills them effectually.

Follow my advice and you need have no fear of foul brood entering your hives through the feeder.

Now comes the question of finding customers for the honey your bees have gathered during the season. You think, perhaps, they are few and far between. Just try your neighbor across the road, and that other one just up the street. Take a nice clean pint-measure jar of glorious golden honey, and say, "How about buckwheat cakes and this honey, when the chestnut burrs begin to open; it is extra nice honey, but I am willing to let *you* have it for fifteen cents per pound." I tell you, beginners, customers go down before the golden honey like wheat before the reaper.

Nothing makes me so mad as to get myself smeared with honey—it sticks so and is so gummy. I make up my

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mind that a man who hands me a bottle, box, or jar, sticky with honey must be my enemy. The hands and clothes are not the place for honey, but rather the inner lining of the stomach. It is, therefore, highly important that you preserve great cleanliness in putting up your honey. Sell your honey near your home. The great markets are no places for the small bee-keeper. If you think this advice is wrong, just try a small shipment some year and see for yourself.

Let your wife eat honey, let your children eat honey, eat honey yourself, and I will guarantee that health and happiness will be your portion.

Scientific * Department.

From Gleanings.

POLLEN AND POLLEN GRAINS.

Prof. Cook Tells Us Some Woderful Things About Them.

Pollen is the male element of plants, and corresponds to the sperm cells of animals. When we remember that no plant-ovule can possibly develop without the fructifying influence of these pollen grains, we understand how necessary they are in the vegetable economy. Pollen grains are very small; often appearing, when shaken from the plant, like a cloud of dust. Their color is exceedingly varied. Some are almost black, others nearly white, though for the most part, they are either orange or yellow. Their form is also extraordinarily diverse. Some arespherical, others cucumber shaped; still others crescent form, and yet others remind us of a dumb-bell. We have in our college library a book at least three times as large as the A B C, devoted entirely to pollen grains. In this volume are many pages used exclusively to illustrate the varied forms and markings of different kinds of pollen grains. So characteristic are the forms of pollen grains that we can often tell what plants our bees have been visiting, by simply dissecting their stomachs. The sculpture, or external markings of pollen grains, are quite as varied as their general forms. Some are smooth, others rough; some are ridged, others grooved; some are pitted, while others bristle with sharp points. Often these projections vary in the same pollen grains.

The pollen grains are developed in the anthers or ends of the stamens of the flowers. In order to fructify the ovules, these grains must lodge on the soft stigma or end of the pistil. But frequently the stamens and pistils are in different plants. In other cases, where stamen and pistils are in the same blossom "Nature shows her abhorrence of close fertilization" by causing the stamens and pistils of a flower to mature at different times. Hence the great necessity of bees and other insects for the performance of this important work in vegetable economy. They must carry the pollen to the stigma. Where any such union is so important. and yet in the nature of things accidental, Nature is always very lavish. Thus the female fish simply drops her eggs, or roe, in the water. The milt from the male passes into the same medium. Here the union must be accidental, and depends on favoring currents; hence the eggs and sperm cells of fish are numbered by millions. For a like reason the pollen grains of plants are exceedingly abundant, and far outnumber the seeds. Thus in the Chinese wistaria, a beautiful climbing bee plant, illustrated in my Manual, there are, says Goodale, seven thousand grains of pollen to about thirty ovules. Hassall estimates that the number of grains in a single plant of rhododendron is seventy-two million six hundred and twenty thousand.

Each pollen grain is a single cell, having two coats—an outer, extine, and an inner, intine, for its wall. It is the extine which is beset with projections in rough pollen grains. The extine is also prequently perforated. In this case the intine lines these holes, or openings.

As previously shown in an article in *Gleanings*, the contents of each pollen grain is protoplasmic matter. This is rich in albuminous material. Indeed, the chemical composition of pollen is not greatly unlike that of some of our grains, as oats, barley, etc.

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When the pollen grain lodges upon the stigma, if the latter be in a right condition, as shown by its adhesive secretion, the pollen grain increases somewhat in size, and soon a tube, sometimes more than one, pushes out through a perforation of the extine. The tube passes through the whole length of the style till it reaches the ovule which is to be fertilized. The time required for the descent of the pollen-tube varies from a few hours to two or three days. A. J. Cook.

Agricultural College, Mich.

From Gleanings.

BEE STINGS.

What Becomes of the Part Remaining in the Flesh after the Top is Broken Off.

I am requested by a subscriber to *Gleanings* to explain how the bee sting is removed from one's skin when broken off in the act of stinging. He suggests that, if it does not work out, it must be absorbed by the system; in which case he thinks that some bee-keepers must be largely composed of stings.

The skin consists of two layers—the outer scarf skin, or cutical, also called epidermis, and the inner true skin or corium, also called *cutis vera*. The outer skin is made up of what is known as scaly, or pavement epithelium; that is it consists of innumerable minute overlapping scales. The inner scales contain pigment in their substance, and thus the color of skin. The albino has no pigment, and hence his skin is transparent, and looks pinkish, as we look right through and see minute blood-vessels filled with blood. The inner skin consists of an outer part, which like the cuticle, has no nerves, and so is not sensible to pain or touch. This is made up of white fibrous tissue and small involuntary muscles contract if the skin is chilled, and drawing the skin away from about the hairs forms the well-known "goose-flesh." Beneath this layer, which is known as the reticulum, because of its intercrossing fibers, is the papillary layer. This is the very inner part of the skin. It takes its name from the fact that little teat-like processes—papillæ—push up against the outer part of the skin. The ridges seen on the inside of our hands are but the elevations of these papillæ. Into these papillæ from beneath come nerves and blood-vessels. Thus from here comes all nourishment to the outer skin; and here is the sensitive part of the skin. Thus, a bee to hurt us must push its sting through the cuticle and reticulated part of the corium till it pierces the papillæ, where the blood receives the poison, and the nerves twinge with its venom.

Now, as we understood the anatomy of the skin we can see now the sting, if broken off in the skin, is loosened and liberated. The scaly or outer skin, is constantly being worn off. When we bathe, the water often is clouded with these minute scales. The snake sheds its scales once a year; but we are doing it all the time. As these scales are constantly wearing off, any minute portion of sting which is held in them is also worn off and separated from the body. Even if a small portion of a sting is caught by the reticulum, the part would probably suppurate and loosen the sting, as is done with slivers that enter and are caught and held in the skin. We thus see that a bee-keeper is not made up of stings, by any means.

In case of porcupine quills, which are barbed like a bee's sting, they are thrust through into the muscle, so that every move of the muscle pushes them; and as they cannot go back, they are pushed on. Thus a porcupine quill may pass some distance through the unlucky animal which has caught them in its tissues. A. J. Cook.

Agricultural College, Mich.

From the American Bee Journal.

Report of Some Experience in Apiculture.

N. W. M'LAIN.

STARVED BROOD.

A disorder which has been quite common in several States during the past season is resultant from conditions prevalent during severe and protracted drouths, and long periods of extremely high temperature, such as has existed over large areas.

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The disorder is significant and important, not so much on account of the actual numerical loss entailed upon colonies affected, which in my own case, and in many cases reported to me, have been severe, as in furnishing proof of failure on the part of those food elements indispensable during the breeding season to meet the large demand for larval food, and essential in maintaining the health and vigor of the bees while the digestive and secretory organs are being taxed to the limit of their capacity. This failure of natural resources results in low vitality, susceptibility and predisposition to disease, and inability to successfully perform the function of hibernation. With some exceptions, due to local advantages, throughout the States stricken by the drouth of the past summer, the bees have entered upon the period of hibernation under conditions more or less unfavorable in proportion as they have suffered in greater or less degree from the effects of all-consuming drouth and heat.

The symptoms of starved brood are distinctively characteristic. Upon opening the hive a slight offensive odor may be noticed if the colony has been suffering for some time. If the comb frame be lifted from the hive, and the bees shaken off, few if any eggs can be found. Of such brood as is sealed, the cappings to be thin and flat, and slightly sunken and commonly of darker color than is usual in prosperous colonies. Upon opening the cells they are found to contain dead pupæ in various stages of development, always inferior in size, and the food supply exhausted.

In the midst of sealed brood patches of uncapped larvæ appear, and sometimes a patch of five or six inches square, and sometimes there seems to have been no effort made towards sealing half the grown larvæ in the hive, although the time for such sealing may be far overdue. The membranes of such larvæ do not present the plump, pearly-white appearance common to well fed larvæ. On the contrary, the membranes are more or less shrunken and wrinkled, and not unfrequently, when the larvæ have reached the advanced pupa stage, the compound eyes begin to color, and the cells are partially capped and then abandoned, and the appearance is that commonly designated by the term, "bald-headed bees." Sometimes a few of these bees, dwarfed in size, emerge from the cells and engage in the hive with what vigor and for such term as their limited development will permit.

In a number of tests made during the past season, the progeny of the same, queen, reared under directly opposite conditions of larval growth, so varied in size as not to be recognizable as offspring of the same progenitors. The reason for this variation was not far to seek. The changed conditions of the colony during the time when the different generations were being reared determined the modification in development. The remedy I used and prescribed for others was a preventative rather than a curative. Starved brood means starved bees. If the cause be removed, the effect speedily disappears. All that needs to be done is to supply them with a substitute for these resources essential to their own health and vigor, and indispensable in brood-rearing, in search of which they are rapidly and vainly wearing out their vitality.

The recipe for preparing the remedy is as follows:

To 10 pounds of sugar add half a pint of dairy salt, 2 tablespoonfuls of soda, 2 tablespoonfuls rye flour, 2 tablespoonfuls of very finely powdered bone ash, and 1 tablespoonful of cream of tartar. Mix thoroughly, then add 2 quarts of hot water, and stir until thoroughly dissolved, then boil for two or three minutes only. To one-half a pint of fresh milk add three fresh eggs thoroughly beaten, and when the syrup is cool enough to feed add the eggs and milk, and when thoroughly stirred feed warm. Feed in the hive as one would feed honey or syrup.

I used this same food for preventing spring dwindling, and for building up colonies to full strength and efficiency, so that all colonies may be ready for work at the very beginning of the season, when surplus honey may naturally

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be expected. This food fed in the hive keeps all the bees at home to aid in performing the functions of brood-rearing, and in keeping up the temperature of the hive instead of spending their little remaining strength in battling against the cold, damp winds while searching for the food elements needed to repair the waste and drain upon their vitality while hibernating, and indispensable in brood-rearing. This food is not intended for use until after the bees have had a good flight in the spring, and almost any grade of honey or sugar may be used. This special food is a potent stimulant and tonic to the adult bees, giving tone and vigor to the organism, and furnishes the elements essential in brood-rearing in the place and in the manner suited to the convenience and tastes of the bees. No greater quantity should be fed than is required for the current needs of the colony.

THE CONTROL OF REPRODUCTION.

In order that the laws of heredity and the active principles of selection may be practically and persistantly applied in the breeding of bees, I have in obedience to your instructions continued my experiments, striving to discover a simple and practical method for securing control of the natural process of reproduction.

I devised and constructed a fixture, which I call a fertilizing cage, 22 feet square and 26 feet high. Selecting a level plot of ground I set four rows of posts, four posts in each row, forming a quadrangle. The posts are four inches square and thirty feet in length, set into the ground four feet, and exactly seven feet apart. Four rows of girders, two by four inches by twenty-two and four inches are halved in two, and bolted to the inside of these posts, the first row five feet from the ground, then three rows at intervals of seven feet until the top is reached. The upper three lines of girders are continued from each side of each inside post, forming a brace on each side of each post at intervals of seven feet, and forming the bearings for the wire-covered frames which cover the top of the cage. The space from the ground to the first girder, five feet, is covered with matched lumber nailed to the outside of the posts, leaving a smooth surface on both sides. The upper twenty-one feet on the sides and the top of the cage is inclosed by wire-covered frames seven feet square, bolted to the girders on the sides, and securely fastened with screws to the frame-work at the top.

The height of the frame is thus adjustable at twenty-six feet, nineteen feet or twelve feet from the ground by simply lowering the screen frames forming the top, and the upper row (or two upper rows as the case may be) forming the sides of the enclosure, the purpose being not only to determine whether queens or drones would mate in this cage at full size, but also how small an inclosure would be sufficiently large to give suitable freedom and range of flight.

These wire-covered frames are framed like a two-light window-sash, with a mullion in the centre, on which the two breadths of wire-cloth meet. Strips of wood secure the edges of the cloth, and cover all joints at the sides of the frames. With the lower board of the siding settled into the ground, and earth filled against the inside, and the door tight-fitting, the cage is bee-tight. I used drab-colored wire-cloth, which obstructs the light but very slightly. A shelf is fitted against the four sides of the cage on the inside one foot from the ground, and alighting boards directly opposite on the outside. Upon this shelf the hives are placed.

Each hive has an exit cut in either end, and an exit is cut through the wall of the cage registering with the outer exit of each hive, over which, on the outside of a wall, a piece of queen-excluding zinc is nailed. These hives are painted strikingly distinguishing colors, as red, white, blue, green, yellow and black, and a space opposite each of the alighting boards, and a corresponding space on the outside of the wall of the cage are painted in corresponding colors. The colors are repeated in the order named, which separates the hives of the same color a sufficient distance to prevent confusion, and the bees and

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queens readily distinguish their own hive by means of color as readily as by location. If the inner exit be left closed for a day or two after a colony is placed in a cage, the worker-bees readily learn to enter their own hive upon returning from the fields. I found that the queens had no difficulty on returning to their own hives after taking flight in the cage. To test that fact I frequently opened a number of hives in succession, and placing the queens upon the palm of my hand, tossed them high in the air, when they would take wing and fly away.

Upon re-opening the hives a few minutes later they would be found upon the combs. The queens and drones appeared to fly and disport themselves with as much freedom and regularity in the cage as they did in the apiary outside. The virgin queens were introduced from the nursery by various methods. Some were hatched in colonies in the cage from cells matured in strong queenless colonies, and some from cells built under the swarming impulse, which this season could be produced by artificial means only. Mature drones were selected from the hives in the apairy, and also from those returning from their excursions and liberated in the cage, and sealed drone-brood was removed from the hives in the apairy and hatched in strong colonies built up in large hives in the cage, and these drones all flew with freedom and regularity.

A few times I observed a queen embrace a drone and fly all about the cage with entire freedom, and then, the embrace being broken, each flew away in different directions, the queens returning to their hives, and the drones at once rejoined their fellows in the upper part of the cage. It is needless to add that in such cases no accouplement had taken place.

The results realized from this line of experimental work have been so meagre, and the circumstances attending the experiments so exceptionally unfavorable that it is not easy to form an estimate of their value, or determine their significance. Of the many scores of trials made, but six were successful; but six queens were fecundated in the fertilizing cage. However, as the improvement of the bee to the highest attainable excellence outranks all other considerations in practical importance and scientific interest, the methods and results of any intelligently-conducted experiments having this end in view, are well worth placing on record. Besides, future trials may receive direction from a multitude of failures, and the trying experience of the past season is not without compensating features, for even the little gains we make in positive knowledge, although apparently trifling in themselves, have often significant meaning and brood bearing on questions of great value and importance.

My experience and observation lead me to believe that the main reason why this experiment was not satisfactorily successful was because of the protracted drouth and high temperature, which lasted through the entire breeding season, the like of which has not before been known in this region.

From May, 1885, until December, 1887, drouth prevailed, broken only at long intervals by light showers. The succession of two summers of excessive heat and unbroken drouth insured disaster to the present season cumulative in kind and intensified in degree. Continuous feeding has been required to keep up breeding and to prevent starvation.

Whenever feeding was suspended for two or three days, throughout nearly the entire season, oviposition would cease, and the bees ate their eggs, and it has required persistent trials and careful management to rear drones and keep them alive. It has been difficult to get three or four queen-cells matured in colonies such as in ordinary seasons would rear from 25 to 40, and of those permitted to remain outside in the apairy and seek a mate at will, two of every three failed of fecundation.

During the entire season a large number of larval queens, being insufficiently fed, died in the cell, and when for days and weeks together the temperature ranged from 110° to 120°, F., in the sun during several hours each

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day, the pap-food would ferment and turn a dark amber color and dry up to the consistency of thick glue at the bottom of the cells with the dead pupæ. When the temperature ranged from 100° to 110°, F., in the sun, the average temperature in the hive was from 5° to 2° higher until 112° was reached. Then, when the range in the sun was from 115° to 125°, the temperature did not go above 112° in the hive. The fanners were able to prevent the temperature rising above 112° in the hives standing in the sun with a shade-board above the hive-cover. The worker larvæ seem to be able to endure a higher temperature than the queen larvæ.

This season, as a rule, the drones were much smaller than drones from the same ancestors in the summers of 1885 and 1886, and there was a great inequality in the size of the drones and queens of the same parentage, and reared at the same time in the same hive, and a very unusual proportion of the queens were deformed and unable to fly.

Continued observation and experiment furnish corroborative evidence of the correctness of the theory advanced in my last annual report, namely, that drone bees differ in degress of procreativeness, properly classified as the impotent, the conditionally potent, and the potent; and that it is the prerogative of the worker bees to determine the degree of development, and dominate the function of the drones as they determine the kind and degree of development of instinct and organism, and dominate the queens.

The volition of the queen determines the sex of every one of her descendants; but the life of every individual, as well as the modifications in organism and instinct, depends upon and receives its direction from the worker-bees, whose unerring prescience forbids the rearing or maintaining of individuals for whose services there exists no present or prospective demand. It is only when this keen apprehension of the present or prospective conditions of environment indicates a necessity for rearing and maturing potent or potentially potent individuals that such are reared and matured and furnished for the functions they are to perform. Under circumstances unfavorable in the extreme, a condition of seeming prosperity may be artificially produced, and drones numerically plentiful may be reared and preserved alive. It has taxed my skill and patience to the last degree during the last season to do this. I resorted to every stratagem I could devise to secure a supply of mature drones, but in most cases the workers were either unable or unwilling to supply the drone larvæ with food suitable in kind and quantity, for a large proportion of the drones were dwarfed. Dissection showed the sex organs of this sort to be inferior in size, dry, and empty.

Not one drone in one hundred of those which were fully developed, when held by the legs or wings, or when pressed upon the throax, were able to perform the expulsion act, and the sex organs of such, with rare exception, contained nothing but a little clear, thin mucous. I have during the past season at various times examined the contents of the sex organs from scores of drones well developed and structurally perfect of the class which I believe to be potentially potent, in which I have not been able to discover active spermatozoa, nor was the mucous secretion present of that color and consistency which I believe to be the product of special feeding, and indispensable to sexual desire, and for liberating and floating the spermatozoa into the spermatheca.

Without wishing to appear dogmatic, after another season exceptionally favorable for such observation and experience as has furnished more complete data and corroborative evidence, I venture to reassert my belief as set forth substantially in my last annual report, that the preparation for and exercise of the reproductive faculty in drone bees, as well as in queens, depends upon and is determined by the workers. As with the queen, so with the drone, desire and capacity wait upon the will and resources of the workers.

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As the queen must be bountifully supplied with egg-food before the egg-cells begin to germinate and mature in the ovaries, so I believe the drone must be well supplied with that special food suited and intended to produce the desire and capacity for performing the act of copulation, the giving and withholding of which is instinctively determined by the worker bees, as the present and prospective condition demands.

Throughout the past season of extreme heat and protracted drouth there was almost a total failure of all natural resources, and all the influences of nature to which bees are subject, warned them that there was no actual necessity for feeding and maturing drones, and that the abundance and prosperity with which I had supplied them were artificial and deceptive.

In the impotency of the drones, almost universally prevalent, I find the reason for the almost total failure of this experiment. The fact that both drones and queens flew with freedom and regularity in the cage, and the fact that in a few cases queens were successfuly mated outside, leads me to believe that under favorable conditions satisfactory success may be expected. Experiments in breeding bees during the prevalence of such climatic conditions as those of the past season, are attended with hindrances which I have not been able to overcome. My experience and observation have suggested some changes in the size, shape, and manner of constructing the cage which I believe would be an improvement. If, under favorable circumstances, the control of the process of reproduction can be secured by the use of a device permanent in kind, and of moderate cost, then every queen-breeder and progressive bee-keeper may apply the laws of heredity and the principles of selection to the breeding of bees with assurance of realizing results alike in kind and degree to those which have by the persistent application of the same laws and principles been realized in breeding all kinds of domestic animals.

I have, by establishing mating stations in localities remote from other bees, secured the mating of queens and drones selected on account of their excellent paternity and perfect development. I controlled the flight of the different varieties by the use of queen-excluding zinc.

By crossing selected individuals of different varieties, and by mating selected bees of the same varieties avoided in breeding, I have laid the foundation of some ancestral stock of superior excellence. This kind of work requires much patience and persistence during such a season as that just ended. I have begun many other experiments, many of which failed, and others, lacking in completion, require no mention here.

Hinsdrle, Ill., Deb. 31, 1887.

From the Canadian Bee Journal.

Mistakes Corrected.

D. CHALMERS.

It is a mistake to set out bees for first flight in the afternoon and face the hive to the east as the suns rays would then strike on side and back of hive and draw the bees thither much more readily than the light from the entrance would attract them to it. When placing on summer stands set them there at the time of day that the sun will be facing the position in which you wish your hives to stand, and never, if possible, set out during an east wind.

It is a mistake to part the brood nest early in the season and insert a comb in midst (as sometimes advised) to hasten brooding as the weather might become cold and chill the brood ; it is more advisable to see that they have enough stores to carry them into honey flow and leave them alone till then. You'll find them best able to judge themselves how far to spread the brood. Right here let me say that I have no doubt but this may be one of the causes of foul brood. I was shown a weak colony of bees this spring to which the party had given a fine card of brood in all stages and although only a day afterwards it was mostly chilled. This is also a mistake, it is not safe to give weak colonies help in that way until you can get brood from stocks that are

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about ready to swarm the second time, then give with all adhereing bees.

In the use of comb foundation it is a mistake just to put in the handiest way, when in place the side-walls will either be perpendicular or zig-zag. The former, according to my impression, being the proper way, having of late years observed that bees in constructing their own comb build the side walls perpendicular, should be proof positive that it must be the strongest, it may be immaterial but I have a firm conviction that I am correct although it will sag either way if given to bees during a heavy honey flow without being wired.

It is a mistake in the prevention of afterswarms to destroy all queen cells but one, as it might be a blank or perchance contain dead larva, the former is caused by the young queen emerging, the bees replacing the cap and waxing it up again. I have repeatedly found one or two dead workers in such cells. In the case of dead larva I am inclined to believe that it is caused by the pupa becoming too soon detached from the royal jelly. In destroying queen cells I have observed the gnat (after the cell was capped) still going for the royal food "for all it was worth," both ends being still emerged in it while its back and whole body were parted from the jelly. Until lately I considered that dead larva in queen cells was chilled but have found them in parts of the hive where such was impossible; have also found a queen almost matured with her head upwards and not likely to be able to know her way out. For these three reasons I advised deferring the destruction of queen cells until you hear the first piping, then liberate a queen and destroy the others.

It is a mistake to say that the queen don't show marks of having mated, the genital organs of the drone adheres to her and when removed that part will remain gaping most, if not all the remainder of that day.

It is a mistake for any one to suppose that he or she will have a big honey harvest the present season, this is my twentieth summer with bees and never before have they failed to give me less or more surplus ere this time. During apple bloom bees here stored considerable honey, since that most all they have gathered has been used by themselves. A number of years ago I introduced alsike clover by giving it to the farmers near by gratis; ever since they have sewed less or more every year, and although it bloomed fairly well this season it never gave forth the fine aroma of former years, the white clover too is very scarce but is rather gaining. We are now into the basswood of which there is a fair bloom, it will close with us about the end of the month, being two weeks later than last year.

It is a mistake to take the honey from the bees and feed sugar syrup for wintering; not but that they may winter as well on it, but to prevent suspicion that we are feeding such to take from them again as honey. In 1884 I fed sugar syrup for wintering, some people looked at it in a different light, and it will take years to erase the impression. If they gather enough of the product of the flowers on which to winter let them have it, and though honey may be scarce this season it might be abundant next and will sell more readily to. We cannot imagine the ideas people who are unaccustomed to have bees have about them. I have been asked in the City of London "if they made honey all winter?" had I answered in the affirmative the party should justly have surmised that other sweets must be given them from which to make it.

It is a mistake and worse than childishness to advocate the hibernation of bees, (in the full sense of the term) as they act equally the same in a cold wettish day in July or August as they do in winter. Uncover the cluster either time and they erect themselves as much as possible, the hind legs being the largest raises that end the highest when their bayonets are presented and on the end of each you can notice a small speck of poison, then again rap on a hive containing bees, summer or winter, and you'll be answered in a similar manner. The theorist must himself at present be hibernating and better "let sleeping dogs lie."

Poole, July 21, '88.

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Third Annual Report of the General Manager of the National Bee-Keepers' Union, For the Year Ending June 30, 1888.

It becomes the duty of your General Manager, at the end of the third year of the existence of the National Bee-Keepers' Union to review the important events of the fiscal year just ended, and with special pride he makes the announcement that, so far, the Union has been successful in every case it has undertaken in defense of the pursuit of keeping bees. No decision has yet been obtained inimical to the pursuit of bee-keeping.

The officers were re-elected in July, 1887, by an almost unanimous vote, and during the year they have aided in every possible manner to make the Union triumphantly successful in every case it has undertaken.

AMENDED CONSTITUTION.

The proposed amendments to the Constitution were all carried unanimously, and went into effect January 1, 1888; as amended it reads thus.

ARTICLE I—This organization shall be known as the National Bee-Keepers' Union, and shall meet annually, or as often as necessity may require.

ART. II—Its object shall be to protect the interests of bee-keepers and to defend their rights.

ART. III—The officers of this Union shall consist of a President, five Vice-Presidents, and a General Manager, (who shall also be Secretary and Treasurer) whose duties shall be those usually performed by such officers. They shall be elected by ballot, and shall hold their several officers for one year, or until their successors are elected; blank ballots for this purpose to be mailed to every member by the General Manager.

ART. IV—The officers shall constitute an Advisory Board, which shall determine what action shall be taken by this Union upon application of bee keepers for defence, and cause such extra assessment to be made upon members as may become necessary for their defence; provided that only one assessment shall be made in one fiscal year, without a majority vote of all the members, upon blanks furnished for that purpose, together with a statement showing why another assessment is desirable.

ART. V—Any person may become a member by paying the General Manager an entrance fee of one dollar, for which he shall receive a printed receipt, making him a member of this Union, entitled to all its rights and benefits. An annual fee of one dollar, which shall be due on the first day of July in each year, and must be paid within six months in order to retain membership to this Union.

ART. VI—The funds of this Union shall be used for no other purpose than to defend and protect the members in their rights, after such cases are approved by the Advisory Board, and to pay the legitimate expenses of this Union, such as printing, postage, clerk hire, etc.

ART. VII—This constitution may be amended by a majority vote of all the members at any time.

The membership of this Union has not increased as much as it was expected, but this may be accounted for in the fact that the drouth of last summer prevented the bees from gathering much honey, and therefore bee-keepers have felt too poor to add to their ordinary expenses.

In several cases your Manager has been consulted as to the best course to pursue when bee-keepers were threatened with lawsuit by envious or jealous neighbors. After giving due consideration to the facts in each case, they have been advised as to the best course to pursue, and in many cases lawsuits have been averted by the conciliatory measures advised by the Union.

In other cases compromises have been advised, and the wisdom of such has been seen in the amicable relations, now existing, where trouble has been brewing.

CALIFORNIA RAISIN GROWERS.

The decision reached in the Bohn case not only averted trouble which at one time wore a serious aspect, but now a proposition has been made to buy the apiary and remove it, thus saving the apiarist from the loss which would have resulted from his being unceremoniously driven out of his honorably acquired and just rights.

This, however, was quite unnecessary, for the bees not only did no damage, but vastly increased the crop. The California Horticulturist last fall, admitted that the crop was greatly in excess of all expectations, so bees are the fruit growers' very best friends! They increase their crops, and enlarge their bank account balances. This is how the bees have rewarded the makers of the "the late war" forced upon them

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by some ignorant and selfish raisin growers.

It was proved at the trial that the bees could not bite into the skin of a grape. A San Diego bee-keeper, says the San Francisco *Chronicle*, settled the question in this way:

He took a perfect bunch of grapes, every berry of which was in sound and good order, and suspended it in the middle of a hive of bees for an indefinite time. It remained there several weeks, and at the expiration of the period was removed in as perfect a condition as when first put into the hive. Thousands of the bees had been crawling all over the fruit during that time, only too eager to attack the juice thereof, but had been unable to do so.

History repeats itself. Sometime ago, in a town in New England, so strong was the belief that bees injured the fruit, that an ordinance was passed obliging the bee-keepers to remove their bees to another locality. After a year or two the fruit growers decided to have the bees brought back, because so little fruit matured upon the trees.

BOGUS COMB HONEY.

The Wiley lie about honey comb being manufactured, filled with glucose, and being sealed over by machinery, has received considerable attention during the past year.

In order to counteract the baneful influence of that, and similar falsehoods, one of our Vice-Presidents, Mr. A. L. Root, has issued a card, offering $1,000 for proof of the existence of such a fraudulent article on the market, but as it does not exist, the offer is not taken.

In this connection, the Union has forced Prof. Wiley to make this astonishing confession:

At the time, I repeated this statement more in the light of a pleasantry than as a commercial reality, for I did not believe that it was POSSIBLE commercially to imitate the comb.

Therefore he "knowingly, wilfully and maliciously" lied, out of whole cloth, just to cause a sensation, and to injure an honest pursuit. It is astonishing that any man could make such a bare-faced confession without blushing for the infamy it exhibited!

POISONING THE BEES.

A paper in Atlantic, Iowa, published a malicious article against bee-keeping, and advised the grape-growers to poison the bees in their localities, making wild untruthful assertions about the "grape raising industry having been almost entirely killed out in Ohio, by this nuisance." The Union proved this to be a malicious falsehood, and the author of it was shown to be either ludicrously ignorant, or a vile slanderer!

Mr. W. M. Bombarger, of Harlan, Iowa, a member of the Iowa Horticultural Society, and a fruit grower, in a letter to the Bee-Keepers' Union, states that the article in the *Messenger* should "receive the condemnation of the intelligent grape and fruit-grower of the State which it misrepresents," and adds:

"That the grape growing industry in Ohio has been killed out by the honey-bee or apiarists following their harmless pursuits, I assert is false, whether the assertion be made maliciously or ignorantly, and is proven so by the report of the commissioner of agriculture for 1886, page 116 where, commenting on "the shrinkage of yield in Ohio," he reports as follows:

"The shrinkage of grapes in 1881, 1883 and 1885, was due principally to three facts which can not be separated —rot, mildew and the effect of the previous severe winter."

I regard the honey-bees as one of my very best friends in grape and small fruit culture, and keep a small apiary in my smaller vineyard, which is so located that the path of the bees in the air, to their best pasturage during the blooming season, is over my larger vineyard.

I find the bees so valuable in fertilizing fruit bloom that I not only encourage my neighbors to keep them, but intend doubling my stock in the near future. Their value is greatest whenever we have cool, wet weather during the fruit bloom, and the winds cannot carry the pollen in dust form from flower to flower.

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ARKADELPHIA "NUISANCE" CASE.

This case, mentioned in the last Report, will come to trial about July 16, 1888. Meanwhile Mr. Clark has been sent to jail in default of paying a daily fine for maintaining a nuisance by keeping bees in Arkadelphia, Ark.

The Union has employed several of the most noted attorneys in the State to defend the case, and confidently expects a decision in favor of the pursuit.

It would be very detrimental to the pursuit to allow a decision against bee-keeping to be put upon record on the plea of its being a "nuisance."

A member of the Union gives his views of this case in these words:

"It is our duty to stand by him, and hold up his hands while he is suffering imprisonment, and put to no great inconvenience and pecuniary loss in the defence of a principle which is dear to us all. Surely, in a matter of this character the injury of one is the concern of all. I would willingly pay a dozen assessments rather than have Mr. Clark worsted in this matter."

No extra assessment would be necessary if but one-tenth of the bee-keepers of America would join the Union.

It is a shame that, with 300,000 bee-keepers in the United States, so few are willing to defend the pursuit against its enemies. Many are selfish, and think that so long as they are not molested, they will not join the Union. But as soon as they are even threatened, they rush around for some help, and want the Union to tell them what to do, etc.

But the Advisory Board has decided that the Union can defend only those who have become members before they were in trouble of that kind.

It will take nearly two thousand dollars to successfully defend the cases now on hand, and the Union must have two thousand members during the coming year, or it will be obliged to let the cases go by default—and the pursuit will suffer an ignominious *defeat.*

TO THOSE NOT MEMBERS OF THE UNION.

Reader, are you satisfied to accept the matter as the result of your apathy? If not, sit down at once and send a dollar as a membership fee to the National Bee-Keepers' Union. You will get a receipt by return mail, and may then have the consolation of knowing that you have done your duty in this case! It is *now or never!* Inaction will insure defeat—activity is—*life*—energy—power!

UNION IS STRENGTH.

FINANCIAL STATEMENT.

From July 1st, 1887, to June 30, 1888.

Balance as per last report		$224 25
From 97 members at $1.00 each		97 00
From 194 members at $1.25 each		242 50
		$563 75
Paid S. W. Rich's suit	$100 00	
Paid Z. A. Clark's suit	125 00	
Printing, stamps, stationery, etc.	80 48	
		$305 48
Balance on hand July 1st, 1888		$258 27

CONCLUDING REMARKS.

I now submit my third annual report with the hope that it will meet with general approval. Having served the Union for three years to the best of my ability, with the consciousness of having done my duty for the pursuit, I shall welcome my successor as soon as your choice is revealed.

Yours fraternally,
THOMAS G. NEWMAN,
General Manager.

Editor Bee-Keepers' Magazine:

We are beginners in bee-keeping. Wintered 32 stands in good condition, and about the same number rather weak. Have purchased 25 stocks. Have increased some by dividing and some by natural swarming. Have taken 300 gallons of honey and have about 200 more ready to take. Have now 123 stands mostly in good condition. We read the MAGAZINE, *American Bee Journal, Gleanings* and the *Api,* and are ready to speak a good word for any of them. Is not that the way for a school-boy to feel toward his teachers?

Yours, etc., ALONZO SKINNER.
Zenos, Arizona, June 28, 1888.

[Yes, we believe that a man that reads all the bee-papers, *makes money* by so doing, When the bee-keeper gets so he thinks he knows it all it is time for him to have foul brood and other pleasant visitors.—ED]

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Editor Bee-Keepers' Magazine :

I like your MAGAZINE first rate. Bees are making honey here very fast now.

Yours truly,

FRANK WILKINS.

Pelham, N. H.

The coming State Fair at Elmira, N. Y., Sept. 17 to 22, promises to be among the largest and best ever held in the State. Entries are pouring in as never before, and the officers are busy night and day. Intending exhibitors should bear in mind that the closing date for entries is Aug. 18 and *not get left.* Secretary Woodward informs us that all entries *mailed* on that date will be accepted, but why wait until the last day?

The railroads will return all exhibits free of freight, and grant extremely low excursion rates for visitors.

Our Clubbing List.

We offer the following unusual Clubbing List. We consider them *first-class* periodicals, and we cannot too highly recommend them :

	Regular Price.	Price with MAGAZINE.
The Farmers' Magazine,	$ .50	$ .85
The Poultry Keeper,	.50	.85
The Practical Farmer,	2.00	1.75
Agricultural,	1.00	1.25
Prairie Farmer,	1.50	1.65
American Agriculturist,	1.50	1 65
Scientific American,	3.00	3.05
Century Magazine,	4.00	4.00
The Independent,	3.00	3.00
American Horticulturist	1.00	1.25
National Journal of Carp Culture,	.50	.80
Orchard and Garden,	.50	.85
Tuttle's Photograph called "Medley of 120 Prominent Bee-Keepers,"	1.00	1.25
The Poultry Monthly (new subscribers)	1.25	1.45
The Western Rural	1.50	1.75
Harpers' Monthly	4.00	3.75
" Weekly	4.00	3.90
" Bazar	4 00	3.90
" Young People	2 00	2.25
St. Nicholas		3.25
Photographic Times (weekly)	3.00	2.85
Photographic Times (monthly)	2.00	2.00
Planter's Guide, without premium	50	75

Succeeds With Flick Method.

Editor Bee-Keepers' Magazine :

DEAR SIR : I received the Italian queen in good condition, and adopted the plan of Mr. H. H. Flick of introducing, in which I succeeded to perfection. I should say that Mr. Flick has solved the problem of introducing queens. Yours respectfully,

EDWARD TIMM.

Irvington, N. Y., Aug. 1, '88.

"The Gods give no great good without labor," is an old proverb, and a true one; the hardest labor is not always that which is best paid however. To those in search of light, pleasant and profitable employment, we say write to B. F. Johnson & Co., Richmond, Va.

Indiana State Fair.

The year 1888, although a campaign season, with so many and varied counter attractions, does not diminish the interest which exhibitors take in the now world-famed Indiana State Fair. At the present time the applications for space are far in advance of the usual number, and flowing in at a rate never equalled in the history of the exhibition. Exhibitors are advised through the newspapers of the extensive improvements going forward on the grounds in the nature of a new race course, which necessitated the purchase of twenty acres additional grounds that has been added to the already large area, making the Indiana State Fair Grounds one of the very best and most convenient in all its appointments of any of a similar character in the United States or Canada. In addition, an immense two-story amphitheatre is approaching completion, ready for the opening, September 17th. The new track is reported by horsemen, who have viewed and tested it, as one of the choicest in the country, and magnificent speed contests may be looked for this season, such as have never before been witnessed on the Indiana State Fair Grounds, since its inception.

The twenty acres additional has been improved and the general appearance

of the grounds so changed that it will scarcely be recognized as the same place. Considerable grading and tile draining has been done and water pipes laid through the grounds to insure the comfort and convenienee of exhibitors and visitors.

The steady growth of the State Fair proves its importance as an educator in those matters which so interest and are indispensable to successful farming.

THE HONEY MARKET.

NEW YORK.

We are most closed out of old stock, and have not named price on New goods at this time of year, the market is not settled. When new stock comes in will give you quotations.

THURBER, WHYLAND & CO.

Aug. 22, '88.

BOSTON.

Best 1 lb. new honey in comb 18 to 20; 2 lbs. do., 14 to 16; extra do., 8 to 10. Beeswax 25c.

BLAKE & RIPLEY.

Aug. 24, 1888.

CINCINNATI, OHIO.

Demand good for extracted honey, which brings 5 to 8c. on arrival, according to quality. Prices of comb honey are nominal and demand very slow. We are asking 12 to 15e. in the jobbing way. There is a good demand for beeswax which brings 20 to 22c. per lb. for good to best yellow on arrival.

CHAS. F. MUTH & SON.

July 17, '88.

CHICAGO.

A little of the new crop of honey has come forward and sells in a small way at 17c. per pound. For anything short of choice there would be little demand at present. Extracted easy at 7 to 8c. for best grades. Beeswax about 22c. for choice.

R. A. BURNETT,
161 South Water street.

Aug. 16, 1888.

New Bee-Keepers' Text Book—New Edition Just Out.

We have felt called upon to make but few alterations in the new edition as we considered it well up with the times, and by all odds the cheapest, comprehensive work on bee-keeping in the market. It is no advertising scheme, but it is just what its name implies, a *true Text Book*, one to which the apiarist may turn for sound advice at all times, with the felling that somebody's wares are not being pushed under his nose. Mr. Frank A. Eaton, of Bluffton, Ohio, a queen raiser of experience, writes as follows, regarding it:

I have carefully perused the contents of Bee-Keepers' Text Book, and find find it *jam full* of value. My criticism as to its size was simply the first glance or impression as compared with other bee books, but I but I find it contains more value than many others.

It is well to remember that Mr. Eaton ot first condemned the book owing to its size, as it is made to fit into the pocket of an ordinary sack coat, but we wrote him to read it and then report, which he did as above. What stranger testimony could there be of its true value. We could write a book as big as a dictionary without giving more solid facts than are contained in the Text Book. What bee-keepers need is *wheat* not *chaff*.

Rev. E. S. Grover, an experienced apiarist, bought a copy a copy and wrote us the following unsolicited testimonial.

PIEDMOND, S C., Feb. 14, 1888.

SIR—I have received the "Bee-Keepers' Text Book" and am well pleased with it. Indeed it is a real Text Book. It ought to be in possession of all who are learners. I prize it highly. Many thanks.

Yours truly,
E. S GROVER.

Cloth and Gilt, $1.00. Paper, 5c. Postpaid. Address Bee-Keepers' Magazine.

EXCHANGE DEPARTMENT.

Exchanges not to exceed 6 lines, inserted free.

A FULL line of Bee-Keepers' Supplies to exchange for extracted honey. Address at once for price list. C. H. Smith, Pittsfield, Mass. Box 1087.

WILL exchange for extracted honey, or offers Simplicity Hive with two frame nuclei with one of my golden Italian queens, for $2.50 each. Mrs. Oliver Cole, Thesburne, Chenango Co., N. Y.

WANTED TO EXCHANGE.—1 vol. *Youth's Companion*, 1884, 1 vol. *Pansy*, 1883, 32 Nos. *Library Magazine*, and 7 Nos. *Phonographic Magazine*, for one setting (12) Pea Fowl eggs. Write first. BURR FARM, Angelica, Alleganey Co., N. Y.

I would like to exchange 1 vol. of *The Little Farmer*, 11 months of the *Canadian Bee Journal*, '87 8, and 1½ vols. of the *American Rural Home*, for 1886–7, all in good order and home bound, for Newman's *Bees and Honey* or Cook's *Manual*. Write first. W. Matthews Barnum, Angelica, N. Y.

WILL exchange eggs from high soaring, rose comb, brown Leghorns, for tested Italian queens, thin or thick foundation, boxes or offers. Address Geo. L. Ferris, Prairie Farm, Five corners, N.Y.

WILL Exchange first-class Homing Pigeons, stock represents some of the best lofts in the country, for a colony of Italian Bees or a 22 calibre Ballard or Stevens Rifle. Address Jos. A. Eibel, Lancaster, Pa.

I WILL exchange 100 White Star Queens and introducing cages for two lbs. of Bees with untested queen. A sample cage will be sent for 5 cts. in stamps. D. C. Buck, box 276, Dundee Mich.

NOTICE.—I have one of the finest flocks of Laced Wyandotte's, White Leghorn's, S. S. Hamburg's fowls to be found in New York State, and will exchange pairs or trios of same for comb feed. Sections cash or offers. Send sample. State number wanted. Address Leslie Stewart, Jefferson, Schoharie County, N. Y.

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BEE-KEEPERS' GUIDE.

Every farmer and bee-keeper should have it, 15th, 1,000 just out. Wholly revised and much enlarged. It is both practical and scientific, and contains the very latest. Address

A. J. Cook, Agricultural College, Mich.

Mention this Magazine when answering advertisement.

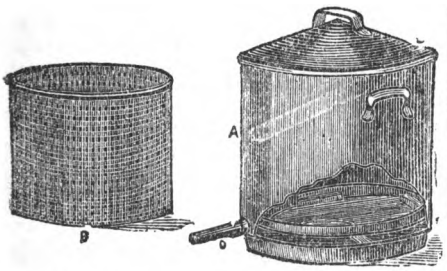
RURAL LIFE,

A paper with a scope as broad as its title, cheap, concise, practical, trustworthy. Sample free.

Rural Life, Marshallville, O.

Mention this Magazine when answering advertisement.

SWISS WAX EXTRACTOR.



This Extracter Works Well on Any Stove.

The Combs are rapidly converted into beautiful wax by the aid of the steam generated in the boiler of the extractor, and the perforations of the basket prevent any dirt from passing out. Any flat stove will accomodate this machine.

Price Complete, - - - $3.50.

ADDRESS

JOHN ASPINWALL,

Barrytown, N. Y.

AGENTS WANTED!

To canvas for one of the **largest, oldest established, best KNOWN NURSERIES** in the country. Most liberal terms. Unequalled facilities. **GENEVA NURSERY,** Established 1846.

W. & T. SMITH, GENEVA, N. Y.

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Binders for Magazine.

Nothing could be more valuable or economical than these binders for preserving your MAGAZINE. No lost numbers. They save having your paper bound and cost but 50 cents post paid. Send for one.

BEE-KEEPERS' MAGAZINE,
Barrytown, N. Y.

CARNIOLAN QUEENS A SPECIALTY.

All Queens bred from imported mothers. Gentlest bees known. No smoke needed. They cannot be surpassed as honey gatherers.

1 untested queen			$ 1 00
6	"	"	5 50
12	"	"	10 00
1 tested	"		2 00
1 select and tested			3 00

Ninety per cent. will prove to be purely mated. Safe arrival of all Queens guaranteed. All orders booked and filled in rotation. Address

ANDREWS & LOCKHART,

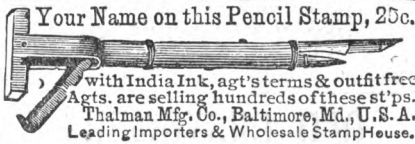
Washington Co. **Pattens Mills, N. Y.**

Barnes' Foot Power Machinery

Read what J. I. PARENT, of CHARLTON, N. Y., says—"We cut with one of your Combined Machines, last winter, 50 chaff hives with 7-inch cap, 100 honey-racks, 500 brood frames, 2,000 honey-boxes, and a great deal of other work. This winter we have double the amount of bee-hives, etc., to make, and we expect to do it all with this Saw. It will do all you say it will." Catalogue and Price List Free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to BEE-KEEPERS' MAGAZINE, Barrytown, N. Y.

Mention this Magazine when answering advertisement.



Mention this Magazine when answering advertisement.

GREAT REDUCTION IN PRICE OF BEE SMOKERS.

To the readers of the Magazine, the Smoker formerly manufactured by its Publishers, both past and present, needs no introduction; its reputation has been well established, neither do I appear as an entire stranger to them, having for a number of years made the Smokers for the proprietors of the Magazine, who have now retired from the supply business. I will continue to make them at a greatly reduced price for the bee-keepers direct.

Large size, 3 inch barrel, $1.15; former price, $1.50,
Smaller size, 2½ in. " $1.00; " " $1.25
By mail, add 20 cents for postage.

Address, *A. E. CUNKEY.*
505 Central Ave., Jersey City Heights. N. J.

Also dealer in Bees, Queens and Bee-Keepers' Supplies.

Mention this Magazine when answering advertisement.

THIN FOUNDATION.

In order to convert into cash, as rapidly as possible, some of our machinery, and all the wax remaining on our hands at the close of the business, we have exchanged them with Messrs. J. VanDeusen & Sons for some of their Superior Thin Flat Bottom Foundation in 25 lb. cases, which we will sell, by the case, at 50 cents per pound. THIS IS A GREAT BARGAIN!

JOHN ASPINWALL,

Barrytown, N. Y.

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$75.00 to $250.00 A Month can be made working for us. Agts. preferred who can furnish a horse and give their whole time to the business. Spare moments may be profitably employed also. A few vacancies in towns and cities. B. F. JOHNSTON & Co., 1009 Main St., Richmond, Va.

Mention this Magazine when answering advertisement.

TRANSFERRING.

Full particulars how to transfer bees from Box Hives to Movable Frame Hives, given in BEE-KEEPERS' MAGAZINE No. 5, of Vol. XV. Price 5 cents. To be had at this office.

FOLDING BOXES.

Enclose your COMB HONEY in our Cartons. Prices Reduced for 1888. Sample 5c. 20 page Catalogue of Glass Jars, Honey Labels, etc., FREE. Send for it. Address

A. O. CRAWFORD, S. Weymouth, Mass.

Mention this Magazine when answering advertisement.

NOW READY.

Handsome and instructive circular and price list of Bees and Queens for 1888, from the

KNICKERBOCKER BEE FARM.

Send your address on postal and get it. Address

GEO. H. KNICKERBOCKER,

Box 41. Dutchess Co. PINE PLAINS, N. Y.

Mention this Magazine when answering advertisemtnt.

OLD CUSTOMERS.

I am ready to receive orders for Eclectic and Chaff Eclectic Hives and fixtures, such as Sections, Frames, Box Holders, and Crates. Also Foundation, Smokers, Veils, and other apiarian supplies. Write for prices.

JOHN ASPINWALL,

Barrytown, N. Y.

THOS. G. NEWMAN & SON,

—DEALERS IN—

BEE-KEEPERS' SUPPLIES.

Illustrated Catalogue sent free.

923 and 925 West Madison St., CHICAGO, ILLS.

Mention this Magazine when answering advertisement.

The Canada Honey Producer,

20 PAGE MONTHLY.

40c. per Year. 3 Subscriptions at one time $1

Sample copies free.

E. L. GOOLD & CO.,

Brantford, Canada.

Sole right in Canada for Shuck's Hives, &c.

Mention this Magazine when answering advertisement.

FREE TO POULTRYMEN.

Guide to Successful Poultry Keeping, A complete Poultry Book, giving the fullest information concerning this profitable pursuit. ILLUSTRATED HANDSOMELY. Not an advertising circular, but a careful compilation covering the entire subject,

SENT FREE to all sending only 8 cts. (¼ price) for our peerless 60 c. Monthly **3 months** on trial. We are determined to introduce to you a home journal that you will like.

The Rural Call, Columbus, O.

Mention this Magazine when answering advertisement.

ROPP'S

Commercial Calculator.

Practical Arithmetic made easy, simple, and convenient for ALL—whether *pro*ficient or *de*ficient in figures—by this unique and wonderful work. An entirely *new*, improved, and greatly enlarged edition has just been issued, which is unquestionably the most useful, practical, and comprehensive work on the "Art of Rapid Calculation," ever published in any language.

It embodies all the *practical* features found in Higher Arithmetic, Lightning Calculators, Ready Reckoners in Interest, Discount, Exchange, Wages, Log and Lumber Tables, besides a great many *original* Rules and Tables, which really are the most essential and valuable things in the book.

The first part contains 125 commercial Tables of *ready*, or instantaneous, calculations in all kinds of Grain, Stock, Hay, Coal, Cotton, Merchandise; in Interest, Wages, Trade Discount, Exchange; in measurements of Logs, Lumber, Land, Cisterns, Tanks, Bins, Wagon-beds, Corn-cribs Cord-wood, and Carpenters', Plasterers', Masons', and Painters' work.

The second part is a complete Arithmetic, in which all its rules and principles, from Numeration to Mensuration, are clearly stated, fully explained, and practically applied, giving all the *simplest*, *shortest*, and most *convenient* methods known for *rapid* calculation. Among its many *original* features, we have only space to mention a very simple process for adding long columns of figures by "Casting out the tens," whereby the mind is greatly relieved, and errors avoided; entirely new methods for shortening the operations in Multiplication and Division, in Merchandising, in computing Interest, True, Bank, and Trade Discount, Profit and Loss, Stocks and Bonds, extracting Roots, and especially in practical Mensuration, all of which will prove highly interesting and beneficial to every one who appreciates this great and useful science, particularly young people, who desire to become proficient in rapid methods of calculation.

The book is neatly printed on finest quality of paper, elegantly bound in pocket-book form; consists of 128 pages, and the No. 3 and 5 have a renewable Account-book attached, which contains self-instructing formulas for keeping a systematic record of receipts and expenditures—in fact, all about bookkeeping required by the masses. Is also accompanied by a silicate slate, pocket for papers, and apart from its mathematical merits, is one of the most convenient and desirable pocket memorandums ever offered to the public.

No. 1, Fine English Cloth, Silk Finish - - $ 50
No. 3, Am. Russia Leather, Acc't, b'k, slate, 1 00
No. 5, Russia Calf, Gilt edges, " " 1 50

Be sure and designate by number which you want when you order. Address,

BEE-KEEPERS' MAGAZINE,

Barrytown, N. Y.

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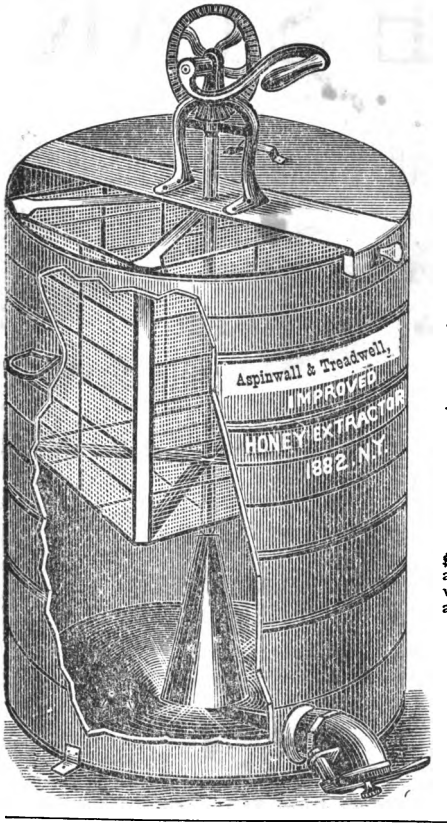

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WE HAVE A FEW OF OUR

No. 2 (Four Frame)

EXTRACTORS

on hand which we will sell to anybody

For $12 each.

These are fine machines. The former price was $15.00. They have our truss bottom and broad cone, and are made of two cross tin (very heavy). They will be crated and put aboard cars or boat for the above price.

First Come, First Served!

Address

JOHN ASPINWALL,
Barrytown, N. Y.

BLACK BREASTED RED GAMES

THE KING OF DOMESTIC POULTRY.

My fowls have unlimited range. Standard birds bred from the finest strains. The fowl for the farmer and fancier. Hawks can't take them. Are excellent layers and for table they stand unequalled. For sale in pairs or trios. Eggs for hatching during the season. Prices Low. Send for illustrated circular. Address

H. H. FLICK, Lavansville,
Mayfield Farm. Somerset Co., Pa

Mention this Magazine when answering advertisement.

OLD CUSTOMERS.

I am ready to receive orders for Eclectic and Chaff Eclectic Hives and fixtures, such as Sections, Frames, Box Holders, and Crates. Also Foundation, Smokers, Veils, and other apiarian supplies. Write for prices.

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Barrytown, N. Y.

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Sample copies free.

E. L. GOOLD & CO.,
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Sole right in Canada for Shuck's Hives, &c.

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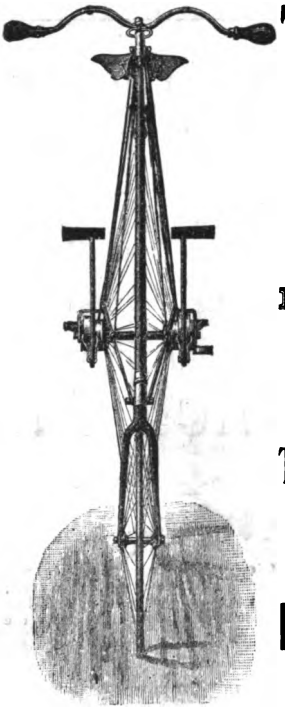

THE STAR

The Best All-Around Bicycle Made.

PERFECTLY SAFE.

NO "HEADERS."

SPEEDY.

The Best Hill Climbers & Touring Machines.

CATALOGUES FREE. ADDRESS

H. B. SMITH MACHINE CO.,

SMITHVILLE, N. J.

THE ROYAL OFFER.

ROPP'S COMMERCIAL CALCULATOR, a book sold everywhere for 50 cents, we will send you FREE, for one new name as subscriber to MAGAZINE and 50 cents.

Get a new subscriber at once and avail yourself of the unusual offer. We have never been able to place before our subscribers a more engaging offer than this. It is certainly worth your while to try. We will furnish sample copies of MAGAZINE free to all those who may desire them. Address

BEE-KEEPERS' MAGAZINE, Barrytown, N. Y.

E. & O. WARD,

Produce Commission Merchants.

We give our personal attention to the care and sale of all kinds PRODUCE including HONEY and BEES-WAX.

Send 10 cents in postage stamps for our Circular of advice of great value to shippers in regard to preparing, packing, and shipping produce to our market. It also contains a recipe for preserving Eggs. Address

279 WASHINGTON ST., bet. Warren and Chambers, NEW YORK.

We employ no Agents.

Reference: Irving National Bank.

Mention this Magazine when answering advertisment.

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Vol. XVI. NOVEMBER, 1888. No. 11.

THE BEE-KEEPERS' MAGAZINE.

Devoted to Bee Culture

JOHN ASPINWALL,
EDITOR AND PROPRIETOR,
BARRYTOWN-ON-HUDSON,
NEW YORK.

H. Gilmour, Inc. N.Y.

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THE BEE-KEEPERS' MAGAZINE.

50 CENTS PER YEAR.

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Subscription Rates
OF THE
BEE-KEEPERS' MAGAZINE

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Six Months..... 30 "
Specimen Copy Free.

Postage to Foreign countries belonging to the Postal Union is 12 cents per year for each subscription Others outside of the Union require to send 24 cents.

EXPIRATION.

Subscribers finding this paragraph marked with Blue pencil will know that their time has expired. Another number will not be sent unless subscribers renew or drop us a postal saying they desire to continue, and will pay later. Bee-keepers are almost invariably honest, and we shall be glad to continue sending you the MAGAZINE if you will just let us know you desire it. Watch the date on your wrapper near your name.

Make Money Orders
Payable at RED HOOK, N. Y.

No stamps taken unless impossible to send money otherwise. Send one-cent stamps if possible.

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ADVERTISING RATES.

Our rates are only *10* cents per line for one insertion, until further notice, subject to the following Discounts :

5 per cent. off on 3 insertions.
10 per cent. off on 6 insertions.
20 per cent, off on 12 insertions.
12 lines to the inch.

Special rates on large advertisments.
Address all Communications and remittances to

BEE-KEEPERS' MAGAZINE,
BARRYTOWN-ON-HUDSON,
NEW YORK.

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BARRYTOWN, DECEMBER, 1888.

THE address of the editor of the MAGAZINE, until April 1st, 1889, wil. be 1303 P Street, Washington, D. C.

FINE $50 FOR ADULTERATION.

IT is gratifying to note that G. Volner, of Jersey City, agent of Charles Israel, of New York, was tried before the First District Court of Jersey City, and was convicted of selling adulterated honey and fined $50. This was accomplished through the efforts of Commissioner Newton, of New Jersey. We hope those who have decried his good work, will please take notice. This is a wholesome lesson, and one likely to be remembered by the parties who have handled the adulterated honey of F. G. Stromeyer & Co., McCaul & Hildreth, and others named in the list published some months back in the MAGAZINE. We think these "honorable gentlemen" (?) will have a smaller sale of glucose and honey in New Jersey after this. Every bee-keeper should uphold Commissioner Newton in his efforts to overthrow, as far as his jurisdiction permits, the adulteration of honey. Let us all join and condemn them as heartily as we do Prof. Wiley.

ELSEWHERE we give some rather interesting legends connected with honey bees. Other insects have also their legends, but none are prettier than those connected with the honey bee.

THE EASTERN N. Y. ASSOCIATION.

This association will have its annual meeting with the Farmers' Institute, to be held in Albany, in Agricultural Hall, on Wednesday and Thursday, Jan. 16th and 17th, 1889, and such an opportunity of being present at two good things at the same time should attract a large number of our readers. There will be one or two papers on bee culture and its relations to farming, which will be read before the Institute. It is with exceeding regret we read of the illness of Mr. J. S. Woodward, the enterprising secretary of the State Agricultural Society. It was caused by overwork, we understand. Certainly the success of the Farmers' Institutes have largely been brought about by the energy and indomitable perseverance of Mr. Woodward, and we hope that he may soon regain his health and take his position again, but we hope he may not work so hard as to jeopardize his constitution.

WE hear that the revision of Langstroth's work is shortly to appear. There is little reason to doubt but that in the able hands of the Dadants the old classic will retain its distintive fea-

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tures and at the same time brought up to the times.

THE editor desires to announce that he will be unable to ship goods to old customers until April 15th, 1889, with the exception of hives in flat by the case, or sections, in lots of 500 or more, either one-pound or eclectic size.

THE department called "Hints to Beginners" will be discontinued until spring, as at present but little is required beyond keeping ice from choking up the entrances of the hives.

CURIOUS HISTORY OF BEES.

Legends, Superstitions, Beliefs and Ominous Signs connected with Bees.

[The following legends were printed in a volume published by Mr. Frank Cowan in 1865 (J. B. Lippincott & Co., Philadelphia), where the original authorities are quoted.]

CONCERNING THE PIETY OF BEES.

I. "A certaine ſimple woman having ſome ſtals of bees which yielded not unto her hir deſired profit, but conſume and die of the murraine; made her mone to another woman more ſimple than hir ſelf; who gave counſel her to get a conſecrated hoſt or round Godamighty and put it among them. According to whoſe advice ſhe went to the prieſt to receive the hoſt; which when ſhe had done, ſhe kept it in her mouth, and being come home againe ſhe took it out and put it into one of the hives. Whereupon the murraine ceaſed and the honey abounded. The woman therefore lifting up the hive at the due time to take out the honie, ſawe there (moſt strange to be ſeene) a chapel built by the bees with an altar in it, with the wals adorned with marvelous ſkill of architecture with ſteple with bels. And the hoſt being laid upon the altar the bees making a ſweet noiſe flew round about it."

II. "A certain peasant of Auvergne, a province in France, perceiving that his bees were likely to die, to prevent this misfortune, was advised, after he had received the communion, to reserve the Host and blow it into one of the hives. As he tried to do it, the Host fell to the ground. Behold now a wonder! On a sudden all the bees came forth out of the hives and ranging themselves in good order, lifted the Host from the ground and carrying it upon their wings, placed it among the combs. After this the man went out about his business, and at his return found that the advice had succeeded ill, for all his bees were dead."

The instances of odd omens afforded by swarms of bees are as follows (we omit some till another time.—ED. B. K. M.)

From Butler's "Lives of the Saints," we have the following:

III. "The birth of St. Ambrose happened about the year 340 B. C., and whilst the child slept in one of the courts of his father's palace, a swarm of bees flew about his cradle, and some of them even crept in and out at his mouth, which was open, and at last mounted into the air so high that they quite vanished out of sight. This," concludes the Reverend Alban, "was esteemed a presage of greatness and eloquence."

In East Norfolk, England, if bees swarm on rotten wood it is considered portentious of a death in the family.

IV. In Western Pennsylvania it is believed that bees will invariably sting red-headed persons as soon as they approach the hives.

[This superstition is easily accounted for, when we consider how bees dislike horses, even if they *are* white.—ED. B. K. M.]

V. "A North German custom and superstition is, that if the master of the house dies, a person must go to the bee-hive, knock and repeat these words: 'The master is dead, the master is dead' else the bees will fly away. This superstition also prevails in England, Lithuania, and in France.

VI. On swarming is found the following observation in Tusser Redivious 1734, p 62. "The tinkling after them with a warming-pan, frying-pan, kettle, is of good use to let the neigh-

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bors know you have a swarm in the air, which you claim wherever it lights; but I believe of very little purpose to the reclaiming of the bees, who are thought to delight in no noise but their own."

To cure stings:

VIII. "Moreover, as many as have about the bill of a woodspeck (woodpecker) when they come to take honey out of the hive, shall not be stung by bees."

IX. Longfellow, in his song of Hiawatha, in describing the advent of the European to the New World, makes his Indian Warrior say of the Bees and the White Clover:

> Wheresoe 'er they move, before them,
> Swarms the stinging fly, the Alimo,
> Swarms the Bee, the honey-maker.
>
> Whereso 'er they tread, beneath them
> Springs a flower unknown among us,
> Springs the White Man's Foot in Blossom."

[We intend to continue these legends in future numbers of the magazine.—ED.]

INTERNATIONAL AMERICAN BEE-ASSOCIATION.

Report of the Proceedings of the Nineteenth Annual Convention held at Columbus, Ohio, on October, 3, 4 and 5, 1888.

(Continued.)

R. F. Holtermann then gave the following address on the

VALUE OF UNITED EXPERIMENTS IN APICULTURE.

Who amongst bee-keepers does not look back with deep and heartfelt gratitude to such men as Huber, Dzierzon, Langstroth, Quinby, and a host of others? and it takes but a moment of reflection to bring to our mind's eye a picture of these men toiling day after day, yes, year after year, to gain a perfect and reliable knowledge of the natural history and habits of the honey-bee. What vast benefits apiculture has derived, and what great strides it has made to make it an important branch of agriculture not only the bee keeper but every well-informed citizen knows.

Why is it that so much credit is due these men? Because they stand over and above other men of their day—because they were leaders and benefactors. True they stood comparatively alone, and had to follow their researches too often unaided, and not only with no one to cheer and help them, but rather, with those about them to sneer and misunderstand. Now these men are leaving, and have left, a rich legacy to prosterity. They have not followed their own selfish aims and ambitions, but in some instances have gained no temporal advancement, and for our benefit

Are we then making the best use of our advantages? Are we doing our duty faithfully, are we making use of that intelligence which we so rightfully claim as characteristic of bee-keepers, and are we with these advantages—so much greater in our age than those of our fathers—preparing a legacy for posterity? We are doing much, but not all that we might.

The Manager of our Bee-Keepers' Union uses the old and true motto, "In union there is strength;" this is pre-eminently true of researches or experiments. We have not the plea that our forefathers had; we have numbers who are only waiting to do such work in union, and we have organizations and means of advertising and reaching them, that our fathers never had. Let us then organize and do the most that skill and energy can devise.

Every branch in agricultural is ahead of us. How many associations are performing experiments through its members. Let us then cast aside in this matter all other motives, and together aim at the elevation and perfection of our chosen pursuit, laying aside all petty jealousies, all desires to self-elevation, and in *union* conduct the experiments decided upon to investigate, no matter who may have led us in that direction.

I believe that one of our greatest failures has been coming to conclusions too rapidly. A new and (as far as theory goes) grand idea impresses us, or the result of one season's experience leads us to believe we have made a discovery which will immortalize our names, and we advance and defend

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that discovery only to lead others and ourselves astray. Now if we want to be of the greatest use, we must keep under, these our sanguine and selfish dispositions, and in the calm light of reason and lofty desire, to advance and elevate apiculture, unite and decide upon some time of experiment; and right here is the difficult question to decide, what shall that be?

I had the honor of being appointed one of a committee by the "Ontario Agricultural and Experimental Union," to decide upon a line of experiment for those of its members interested in bee-keeping. After study the committee felt that so important was it to decide upon the most practical and easily conducted experiments, that we decided upon consulting the members of the North American Bee-Keepers' Society, and the members of the Ontario Bee-Keepers' Association in convention, before taking any decided step in the matter.

The thought was, to have two or three lines of experimentation, and these for the different seasons of the year. For instance, we have men who are able, and have the time and means at their disposal, to make minute and scientific researches of practical value. Again, we have those who have many colonies who can conduct researches, where a large number of colonies are advantageous, but who cannot undertake anything which will require a great outlay of time.

Again, those who have fewer colonies, who are plain, practical men, and could conduct ordinarily careful experments, in spring, summer, autumn and winter, and those again who could only conduct them during one or more of these seasons. Every opportunity should be given to every bee-keeper to join in something. In wintering bees, especially, there should be no drones in the hive. I hesitate to set forth what we shall experiment upon—my desire is rather to rivet your attention upon the grand possibilities before us, knowing that practical minds here, will do the rest.

Of course we can never take the place of a man who can devote his life's energies to experimental work, and can secure what necessary means are required to conduct his labors properly—at the same time we can attain results that he never can, and in a shorter time.

Let us lose no time. Let a line of work be decided upon for the coming winter and the coming year. How vast a work can we accomplish, how great our sphere of usefulness by earnest careful and conscientious work!

In one year, in certain directions, we can make more progress by this method, than before in ten. But I need not point out to a bee-keeper the advantage to be secured by united, whole-souled organization to accomplish any work; no more fitting example of this can be found than in the homes, the occupants of which we are the "masters."—R. F. HOLTERMANN.

VICE-PRESIDENTS' REPORTS.

Travel, reading, observation and conversation with bee-keepers in various parts of the State lead me to think that the crop of honey is light in Iowa this year. While the season has been better than last as regards the condition in which the bees will be at the beginning of winter, and perhaps also as to the quantity of surplus, it is mostly fall honey and off color, though the quality is good.

The severe drouth of 1887 so killed the white clover that it required all this season to regain its foothold in the pastures. I doubt if it is fully reestablished now. So we got no white clover honey worth speaking of. Basswood (linden, if you like the word better) blossomed very full in 1887. This was its off year, and the yield light. The fall flowers yieided fairly well. Bees seem to be in good condition. I have not heard of any foul brood.

The Chapman honey plant was tried to some extent. There is no doubt about the fondness of bees for it, but whether it would pay to cultivate for honey is another question. A fine exhibit of bees, honey and implements was made at our State Fair, and at some of the local fairs. The art of bee-keeping seems to be keeping step to the

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music of progress in other departments of rural life.

EUGENE SECOR.

Forest City, Iowa, Oct. 1, 1888.

The past winter was passed fairly well by the bees. Spring dwindling was excessive, owing to severe weather. The clover yield was a total failure in most localities, linden the same, and at its close showers and warm weather gave us some thistle honey in buckwheat localities; the fall flow was fairly good. On an average not sufficient honey has been secured for winter, yet colonies are otherwise in good condition. Whilst the average is so low, we hear of isolated cases where a yield of 30 to 40 and even 60 pounds per colony has been obtained; and, on the other hand colonies had to be fed in the height of the honey season.

Increase has been but slight, and all colonies remaining should be carefully preserved and cared for. There has been practically no comb honey taken, and the extracted honey will be off the market before the end of the present month. R. F. HOLTERMANN.

Brantford, Ont., Oct. 1, 1888.

The convention then adjourned until 2 P.M.

AFTERNOON SESSION.

President Mason called the meeting to order at 2 P.M., and the next business in order was the

ELECTION OF OFFICERS.

Considerable time was spent in balloting, and the results were as follows:

PRESIDENT—Dr. A. B. Mason, Auburndale, O.

VICE-PRESIDENTS—Thos. G. Newman, Chicago, Ill.
Prof. G. W. Webster, Lake Helen, Fla,
Joseph Nysewander, Des Moines, Iowa.
R. L. Taylor, Lapeer, Mich.
O. L. Hershiser, Jamestown, N. Y.
Martin Emigh, Holbrook, Ont.
Frank A. Eaton, Bluffton, Ohio.
F. Minnick, Bessemer, Wis.

SECRETARY—R. F. Holtermann, Brantford, Ont.

TREASURER—Dr. C. C. Miller, Marengo, Ills.

After the election of officers, the topic announced for discussion was,

COMB HONEY—SWARMING, ETC.

Dr. Miller was called upon, but said that he did not know as he could give anything new upon the subject. Some one asked him if he could tell how to prevent swarming. He replied: "No; I do not know how to prevent swarming. I can prevent increase, but not swarming. Who knows how to prevent swarming?" No answer.

Dr. Beese asked him how he liked contracting the brood-nest.

Dr. Miller—I practiced contraction of the brood-nest — practiced it quite severely, too, at times, but I am not sure that I prefer it. I may yet go back to having the same number of hives in the apiary all the year around.

Dr. Tinker—If we have the brood-chamber too large, it becomes to a certain extent, a store-chamber. There is more economy and comfort in having the brood in one apartment, and the honey in another. When the first swarm issues I hive it upon the old stand, putting the old hive to one side. As soon as I have time to attend to it, the bees are shaken from the combs of the old colony down in front of the newly-hived swarm. The combs thus deprived of bees are placed over some other colony. By this management there is no increase, and rousing swarms are secured. As the bees hatch out, the cells are filled with honey. A queen-excluding honey-board must be used under the set of combs placed over another colony. When a queen-excluder is used the bees will not destroy the queen-cells.

In reply to an inquery, Dr. Tinker said that in hiving swarms he filled frames half full of foundation.

AN ACKNOWLEDGEMENT FROM MR. COWAN.

President Mason reported that Mr. Cowan, upon receipt of the letter informing him of his election as an honorary member, had replied, thanking the Society most cordially through him as its President.

HONEY-DEW FOR WINTER-STORES.

In reply to an inquiry as to whether we should use honey-dew for winter

stores, Prof. Cook repiied that, if it were palatable to the taste, he should consider it safe. He objected most strongly to the use of the term "bug-juice," as applied to honey-dew. Such terms give an unpleasant impression that is prejudicial. He urged all editors to cut out the term whenever it be found in correspondence.

Mr. Thomas G. Newman, by request, gave the following address concerning the work undertaken by the

NATIONAL BEE-KEEPERS' UNION.

MR. PRESIDENT :—It is a well-known fact — one firmly established in the minds of all that "in union there is strength." Of course we cannot approve of any union to carry out an illegitimate or unlawful work; but a union to defend our pursuit from the unjust attacks of ignorant or prejudiced persons, is not only desirable, but very necessary to our well-being and general prosperity.

Look for a moment at the object and aim of the union of the Atlantic States a century ago, and see how the grand design has been carried out even to a grander achievement. See the millions of freemen of to-day, who inhabit this "land of the free and home of the brave," gathered from every land and clime, who are enjoying the blessings of "peace and plenty," entirely free from oppression or tyranny, and increasing in wealth and power — all resulting from a bond of union only a hundred years old.

Then these sparsely inhabited States —thirteen in number—were weak and almost powerless. The Union has made them strong and powerful — it has developed strength! A strength which says to all—both friend and foe — "Hands off;" we are able to defend ourselves and take care of our rights.

For this cause, and for this purpose, does the National Bee-Keepers' union exist! To form a "bond of union" — to throw a safe-guard around the pursuit as well as its devotees. It does not seek a quarrel, but when one is forced upon any of its members, it sets up a "Rock of Defense" by its very existence and glorious record. *Never yet* has it suffered defeat in all the trials it has defended before the courts! That, surely, is a record to be proud over — but it is more than that. It is a *warning* to ignorant and jealous enemies to beware how they trifle with the pursuit of apiculture, and to keep their *hands off* the interests of its devotees. It warns them that the bee-keepers, as well as the bees, have a sting, with which to torture their enemies!

The Union not only seeks to obtain decisions from the highest courts of America, but also to have on record these decisions to be quoted as precedents in all the courts of law, and by all the lawyers who practice therein. In the case lately tried in New York, the Judge stated that there were no *precedents* to guide the decision, and hence he ruled adversely to the bees, as did one in Canada, likening the apiary to a pig-sty, or a manure pit.

Now we are beginning to make history — to record decisions — to provide precedents! When "ignorance" assails the bees. and charges them with eating up the clover (as they did in the sheep-bees case), the records and courts decide that the bees are not only innocent of the charge, but that they benefit the pastures by fructifying the flowers, and thus *increase* the product!

When "prejudice" comes into court with the charge that the bees injure the fruit, the decisions say, *No!* Birds and wasps are the depredators, the bees have no means of opening the skin of grape or peach. They only take what is running to waste after the fruit is punctured by bird or wasp!

When "jealousy" throws a charge into court against the bees, saying that they are a *nuisance* and must be removed, the Judge says, *No!* It has been decided that bee-keeping *per se* is not a nuisance — they may remain!

When "ignorance" complains that the bees "eat up young ducks," as it did in Arkadelphia, common sense replies most emphatically that the charge is *madness*, and derides the accuser, sarcastically averring that it may as well be charged with eating

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elephants, or destroying the mountains!

What the Union has done is a guarantee for the future. It may not always triumph over prejudice and envy and ignorance, but it will defend the pursuit, and uphold the right. It is for the bee-keeper to say whether it deserves both their moral and financial support or not. If it does, they should render both in unstinted measure. It is to the interest of all to do so, and the interest of all is the interest of every individual engaged in the pursuit of bee-culture.

As the Union has made the speaker *its servant* (without salary or emoluments), he may speak thus plainly, for he will never require or take any assistance from the Union, except that assistance which comes to every devotee of the pursuit in a general way, by its influence in favor of justice and right!

The Union is yours—support it.

THOMAS G. NEWMAN.

The following resolution was passed by a unanimous vote:

Resolved, That it is the sense of this society that the National Bee-Keepers' Union has been productive of good, and deserves the hearty, moral and financial support of all bee-keepers, and that the General Manager deserves and receives the hearty gratitude of this Association for his very earnest, efficient and disinterested services.

The convention then adjourned until 7 p. m.

EVENING SESSION.

President Mason had no more than called the meeting to order before he pulled Mr. Root "over the coals" for careless proof-reading. Mr. Root had allowed the words "manufactured stock" to appear in his market quotations. For once the joke, and it was a serious one, too, was on Mr. Root, and everybody had something to say; the talking and laughing over this mishap proved so interesting that considerable time slipped by unheeded. Finally attention was turned to the consideration of the proposed

CONSTITUTION AND BY-LAWS FOR THE SOCIETY.

This was prepared last year by Mr. Thomas G. Newman, and referred to a committee which was to report at this meeting.

The committee reported the matter back to the convention without recommendation. Then, with but a very little discussion or consideration, it was voted to adopt the new Constitution and By-Laws, and the North American Bee-Keepers' Society will hereafter be known as the

INTER-NATIONAL AMERICAN BEE ASSOCIATION,

with the following Constitution and By-Laws:

ARTICLE I.—*Name.*

This organization shall be known as "The International American Bee-Association," and shall include in its territory all of the United States and Canada.

ARTICLE II.—*Object.*

Its object shall be to promote the general interests of the pursuit of bee-culture throughout the North American Continent; to form a fraternal bond of union for the instruction and protection of its members; to diffuse a general knowledge of the value and uses of honey both for food and medicine; to create a market for this God-given sweet, and to assist in its distribution evenly over the American Continent—and thereby enhancing its commercial value.

ARTICLE III.—*Membership.*

1. This Association shall consist of its officers, life members, annual members, honorary members, delegates from affiliated local associations, and ex-presidents.

2. Any person interested in Apiculture may become a Life Member, upon the payment to the Secretary of the sum of ten dollars, and receiving a majority vote at any annual meeting of this Associaation.

3. Any person interested in Apiculture may become an Annual Member

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upon the payment to the Secretary of one dollar, and receiving a majority vote, at any annual meeting. Ladies interested in apiculture may be admitted free upon a majority vote.

4. Annual Members shall be entitled to vote, hold office, and discuss any question before the Association, subject to the By-Laws of the Association.

5. Any persons interested in bee-culture may become Honorary Members by a majority vote at any regular meeting.

6. Delegates from affiliated local Associations shall be admitted free, and have all the rights of annual members.

ARTICLE IV.—*Officers.*

1. The officers of this Association shall consist of a President, First Vice-President, Secretary and Treasurer, and their term of office shall be one year, or until their successors shall be elected and installed. These officers shall constitute the executive committee.

2. The Presidents of all the Local Associations, in affiliation, with the International Association, shall be *ex-officio* Vice-Presidents of this Association.

ARTICLE V.—*Affiliation.*

Any State, District, Territory or Province in North America may become affiliated to the "International American Bee-Association" upon the annual payment of five dollars, which shall be due on the first day of January in each year.

ARTICLE VI.—*Meetings.*

The Annual Convention of this Association shall be held at such time and place as shall be agreed upon at the previous Annual Convention. Ten members shall constitute a quorum for the transaction of business, but a less number may engage in discussion, and adjourn until some future day.

ARTICLE VII.—*Special Meetings.*

Special Meetings may be called by the President, Secretary, and Treasurer, who shall constitute the executive committee.

ARTICLE VIII—*Vacancies in Office.*

Vacancies in office by death, resignation, or otherwise, shall be filled by the President until the next annual meeting.

ARTICLE IX.—*Amendments.*

This Constitution may be amended at any Annual Convention, by a two-thirds vote of all the members in attendance.

BY-LAWS.

ARTICLE I.—The officers of this Association shall be elected by a majority ballot; or, if so decided, by a vote of two-thirds of those present, the officers may be elected by a show of hands.

ART. II.—It shall be the duty of the President to call and preserve order in all meetings of the Association; to call for all reports of officers and standing committees; to put to vote all motions regularly seconded; to decide all questions of order according to the Constitution and By-Laws of the Association, and in accordance with Parliamentary usage; to provide for counting the votes at all elections; and at the expiration of his term of office to deliver an address before the Association.

ART. III.—It shall be the duty of the First Vice-President (or in his absence of the other Vice-Presidents), in the absence of the President, to perform the duties of that office.

ART. IV.—It shall be the duty of the Secretary to call the names or the members of the Association at the opening or each annual meeting, and to receive the annual dues; to report all proceedings of the Association, and record the same, when approved, in the Secretary's book; to conduct all correspondence of the Association, and to file and preserve all papers belonging to the same; to take and record the name and address of every person who becomes a member of the Association, and transfer the moneys received for dues to the Treasurer, after taking his receipt for the same; to make out and publish annually, as far as practicable, a statistical table show-

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ing the number of colonies owned in the spring and fall, and the amount of honey and wax produced (together with such other information as may be deemed beneficial) by each member of the Association; and to give notice of all meetings of the Association in all the bee-papers, at least four weeks before the time of such meeting.

ART. V.—It shall be the duty of the Treasurer to receive from the Secretary the funds of the Association, and give a receipt for the same; to pay them out upon the order of the executive committee, and to render a written report of all receipts and expenditures of the Association at each Annual Convention.

ART. VI.—The Secretary shall have power to choose an Assistant-Secretary if deemed necessary.

ART. VII.—The Association shall be mainly governed by the following order of business:

Call to Order.

Calling the Roll of Officers and Members.

Reading the Minutes of the Annual and Special Meeting, if any.

Reception of New Members and the Collection of Annual Dues.

Secretary's Report.

Treasurer's Report.

Report of Standing Committees.

Reports from Affiliated Societies.

President's Address.

Election of Officers.

Selection of the Time and Place for holding the next Convention.

Miscellaneous Business.

Discussion of Apicultural Topics.

Installation of Officers.

Adjournment.

ART. VIII.—1. A committee of five may be elected, who shall have power to organize itself into a "Honey Company," and its duties shall be to inaugurate plans for the marketing and sale of the products of the apiary. Every member of the International American Bee-Association, and its alffiiated branches, shall be entitled to the benefits of the Honey Company, subject to the terms of its By-Laws.

2. This Honey Company shall make Annual Reports of the state of the market, amount of business done, and of its financial condition, to the Annual Convention of the International American Bee-Association.

ART. IX.—1. The Secretary of each local Affiliated Society shall, through its Secretary or President, on the first day of August in each year, report to the Secretary of the International American Bee-Association, the number of its members, stating the aggregate number of colonies of bees in their apiaries in the previous fall, the number in the spring, the increase since, and the approximate number of pounds of honey produced (stating comb and extracted separately), and any other desirable information concerning the probable honey-production of those not members of the Society, but within the territory of the affiliated local association.

2. If the annual Affiliation Fee be not promptly paid, and the Local Report withheld, the "International American Bee-Association" may at any time within one month of the dates mentioned, withdraw the privileges of affiliation, which comprise the following:

(1.) The President of each Affiliated Society is *ex-officio* a Vice-President of the International American Bee-Association.

(2.) It shall be entitled to receive from the International Bee-Association two Silver Medals, to be offered as Prizes for Honey, open for competition to all its members, one for the best in the comb and the other for the best out of the comb.

(3.) The members of all the Affiliated Societies shall be entitled to the facilities which may be provided from time to time by the Honey Company, for the sale of Honey and Beeswax, upon the terms stated in the By-Laws of the Company.

(4.) Each Affiliated Society shall be entitled to the services of a Judge to award premiums at its Bee and Honey Show, upon the payment of his actual railroad and hotel expenses.

(5.) Each Affiliated Society shall be entitled to elect one Delegate to each 25 of its members, or fraction thereof, who may represent it at the Annual

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Convention of the International American Bee-Association—all expenses of such Delegates to be borne by themselves or the local society, or both conjointly, as they may provide. Such Delegates shall be entitled to vote, hold office, and take part in all the deliberations of the International Bee-Association.

ART. X.—A Defense Committee of seven shall be appointed for the purpose of considering the applications of members for defense from unjust lawsuits by those who are prejudiced against the pursuit. This committee shall be the officers annually elected by the National Bee-Keepers' Union, which is hereby declared to be affiliated to the International American Bee-Association. Its President is hereby made a Vice-President of this Association, and its General Manager also a delegate to the International Convention.

ART. XI.—An Expert Committee of three shall be annually elected and fully empowered to prepare Examination Blanks, and make all necessary arrangements for the examination of candidates for Diplomas as Experts in the art of bee-keeping. This committee shall be empowered in the name of this Association, to award Diplomas of three grades upon candidates, according to their proficiency in the art of bee-keeping, and the management of an apiary.

ART. XII.—1. The Executive Committee of this Association shall cause the Constitution and By-Laws to be printed in appropriate form, and every person joining the Association shall be entitled to a copy of the same.

2. It shall also select subjects for discussion, and appoint members to deliver addresses or read essays, and the same shall be published with the call for the next Annual Meeting.

3. It shall also provide free Badges for all members, and procure Medals for the Honey Shows of Affiiliated Associations, and Diplomas for experts.

4. The Executive Committee shall also provide a place of meeting for the Annual Convention, and see that all necessary arrangements are made to carry out the demands of the Constitution and By-Laws.

ART. XIII.—No member shall be entitled to the floor more than five minutes in the discussion of any motion, resolution or petition, without obtaining the consent of the Association, nor a second time, unless by the consent of the President, or a majority of the members present.

ART. XIV.—All Committees shall be elected by ballot, by a plurality vote, except by special resolution.

ART. XV.—These By-Laws may be admended by a two-thirds vote of all the members present at any annual meeting of the Association.

The next and last topic discussed was,

THE WINTERING OF BEES.

Dr. Miller—Most of the points have been touched upon. The bees must have good food, must be brought into the cellar early in the fall; the temperature kept at from 40° to 45°; not to be taken out too soon. I believe this covers most of the ground.

Dr. Tinker—In the early part of the winter I think that a temperature of 41° is better than 45° for the cellar. If anything breaks up the hibernation, and sets the bees to eating, it is injurious; and it makes no difference, so far as results are concerned, whether they eat honey or pollen. After February the temperature should be higher.

It was voted that Thomas G. Newman & Son publish in pamphlet form the report of the proceedings, and mail copies to each member of the Association, and that they be paid $20 for the work.

It was also voted that the Secretary be paid the balance ($7) in the treasury for his services.

The following resolution was passed by a unanimous vote:

Resolved, That we extend our thanks to the Hon. Fred Blenkner, Third Assistant Sergeant-at-Arms of the House of Representatives, and through him to the House of Representatives, for the free use of the Hall of the House for holding this convention.

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ADJOURNMENT.

The convention then adjourned to meet in social intercourse during the next day, at the Bee and Honey Hall on the Centennial Grounds; and the next meeting will be held at the call of the executive committee, at Brantford, Ont. W. Z. HUTCHINSON, Sec.

From the British Bee Journal.

Bee Keepers' Guide, or Manual of the Apiary, by A. J. Cook, Professor of Entomology in the Michigan State Agricultural College.

(*Continued.*)

In describing the compound eyes, Professor Cook gives illustrations from Gegenbower, but we think they do not give such a good idea of the structure of the eye as those of Grenarcher, copied by Cheshire, and introduced on Plate IV. of his book. We have a very beautiful, unique microscopic section of the eye, showing the disposition of the rods, and the decussating nerve fibrils, corroborating Grenarcher's views, and showing the accuracy of his drawings. When we were staying at the College, we showed this preparation to the students of Professor Cook's class, and they were astonished at the beauty of the structure of this organ.

Professor Cook does not hold the view of a Mosaic version, which, he says, "is now abandoned," but thinks the philosophy of sight in insects is rather like that of higher animals, except thousands of eyes instead of two are used as one. Although their sense of color is very keen, our author believes "more has been made of this matter of color than truth will warrant." We think so, too, and believe that the experiments of Sir John Lubbock go to prove, not that bees prefer one color to another, but that they can be accustomed to recognize a certain color.

There is much worthy of study in this part of the chapter which refers to organs common to most insects, but we have not the space to go through them as carefully as we should wish or as the work deserves. The second part of the chapter refers more particularly to the honey-bee. Referring to food given to queens and drones, he says Shiemenz and Schönfeld are unquestionably correct in the belief that they are fed by the workers the same food that the larvæ are fed, and reasons from the fact that, as the queen lays over 3,000 eggs a day, weighing 3,000 grams, while she herself only weighs 2,299 grams, for her to be in a position to lay nearly double her weight daily, can only be possible because she is fed with highly nutritious food, which was wholly digested for her. Schönfeld found that the queen, like the drones, will soon die if shut away from the workers by a double wire cage, even though they have access to honey.

One of the most interesting paragraphs in this chapter is that referring to the glandular organs, which we find very well explained both as regards their structure and functions. Ramdohr, in 1811, discovered a pair of salivary glands in the thorax, and two in other pairs were discovered by Meckel 1846. These have been fully described by Siebold. Their functions are well known. Still Cheshire says, on page 72, "and yet dense ignorance respecting them is common to the present day, even such an accomplished German apiculturist as Berlepsch failing to mention them." Had Cheshire looked at page 136 of *Die Biene*, by Berlepsch, he would have found that not only does this distinguished German mention them, but that he also describes their functions. Schiemenz goes into the matter very carefully, and in an elaborate monograph, beautifully illustrated, he endeavors to show that they produce a secretion which is the food of the larvæ and queens. This view has been proved to be incorrect, and Schönfeld has fully demonstrated that the food of the larvæ is, as Dufour first pointed out, digested by the workers. Moreover, any doubt as to this being the case has been removed by the experiments of Dr. A. de Planta, who shows that the chyle food of queen, drone and worker larvæ varies. Professor Cook explains this very clearly, and then goes on to treat of

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the honey stomach with its four-lipped mouth, and shows how the bee can either feed herself or store honey at will. We ourselves do not believe that the glands supply the larval food exclusively, although we think that secretion from these is added to the chyle food given them. Also, why do the queen and drones have glands? for if they get food as a secretion they do not want them. This is how Professor Cook sums up the matter: "Before leaving the subject, it seems well to remark that it would appear that the old view of Dufour, so ably advocated by Pastor Schönfeld, is, despite the arguments and researches of Schiemenz, the correct one. The queen, drone and larvæ do not get this food as a secretion — a sort of milk — but it is rather the digested pollen or chyle modified, as the bees desire, by varying their own food. In addition to this albuminous food the queen and drones also take much honey; thus they need the glands which furnish the ferment that changes cane to reducible sugar, and they have them. If all honey were fully digested, then the drones and queen would not need any glands at all. The fact that the pollen that the larvæ do get is partially digested is further proof that this is chyme, or partially digested pollen."

The legs of bees, with their antennæ — cleaners, claws, spines and beautiful pulvilli, are fully described and illustrated, as are also the mouth parts and sting. He does not believe that the poison is dropped into the cells to preserve the honey, according to Dr. Müllenhoff's theory, but thinks the formic acid in honey doubtless comes from the honey stomach.

Chapter III. is devoted to swarming and natural methods of increase. Alluding to the piping of queens, he agrees with Landois that this is a true voice made in the cells, and even also by a queen whose wings are cut off. He says it is usually asserted that bees do no gathering on the day they swarm previous to leaving the hive, but that is not true. Mr. Doolittle thinks they are just as active as on other days. The reason for clustering of the swarm, he says, is, no doubt, to give the queen a rest before her long flight.

Speaking of honey, he says it is "digested nectar." This nectar contains much water, though the amount is very variable — a mixture of several kinds of sugar and a small amount of nitrogenous matter in the form of pollen. Nectar is peculiar in the large amount of sucrose cane sugar which it contains. Often there is nearly or quite as much of this as of all the other sugars. We cannot, therefore, give the composition of honey; it will be as various as the flowers from which it is gathered. "Again, the thoroughness of the digestion will affect the composition of honey." He thinks it likely that incomplete digeston and the possible variation in nectar make the determination by the analyst, either by use of the polariscope or chemical reagents, a matter of doubt. He goes very fully into the action of honey under the polariscope, and shows that too much reliance should not be placed on this test. He finds the specific gravity varies from 1.40 to 1.50. Honey will generally granulate when the temperature is reduced below 70°. Some honey seems to remain liquid indefinitely. Granulated honey is almost certainly pure.

In speaking of honeycomb he says: "The late Prof. J. Wyman demonstrated that an exact hexagonal cell does not exist. He also showed that the size varies, so that in a distance of ten worker-cells there may be a variation of one cell in diameter, and this in natural, not distorted cells." "This variation of one-fifth of an inch in ten cells is extreme, but a variation of one-tenth of an inch is common." We have ourselves carried out a large series of measurements which fully confirm this, and we hope soon to be able to publish the results. He says, "as we have also maintained, that bees change from worker to drone-cells, not by any system, but simply by enlarging and contracting. The transition cells are usually of four rows although sometimes there are two or as many as eight." Prof. Cook says: "An English writer criticises Langs-

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troth's representation of these irregular cells, and adds that the angles can never be less than 100°. This is far from the truth, as I have found many cells where an angle was considerably less than this." We have also got a large number of impressions taken direct from the comb showing that Langstroth is right. Some combs which we last year exhibited at the Conversazione of the British Bee-Keepers' Association had several rows of perfectly square cell which would represent angles of 90°.

Referring to the number of cells to the square inch, he says: "A recent English author, after stating the diameter of the cells adds: 'The statement, many times made, that twenty-five and sixteen of these respectively is erroneous, as they are not square.' He says these are $29\frac{1}{5}\frac{3}{5}$ and $18\frac{1}{3}\frac{7}{7}\frac{8}{8}$. After many counts he thinks he should have used his eyes rather than his mathamatics, for he finds worker-cells per square inch vary from 25 to 29, and drone-cells from 17 to 19 per square inch. Our English author seems quite to have ignored the fact that because of this great variation and for convenience of calculation the above figures were adopted as an average."

A very interesting paragraph on pollen and propolus concludes the first part of the work, which occupies 163 pages. It is not rambling and spun out, like the writings of some authors, but is concise, clear, and contains all of any value to the bee-keeper. It is also written in a Christian spirit towards those from whom the author differs.

The second part is practical, and is devoted to the management of the apiary. Here the principal hives, appliances and various methods in use in America are described very fully and illustrated. In this part there is also much new matter added, making it very complete. The Langstroth and Heddon hives have full justice done them, as well as other hives in use in America. Our English bee-keepers will find much useful information, although some of the appliances and methods may not be suited to this country.

All Prof. Cook says as to management of hives for surplus is as useful for us as for our American friends, but we do not encounter the same difficulties in wintering as they do, therefore we do not need to take the same measures for the protection of our bees. Our methods of open driving and transferring are also simpler than theirs. The chapters following are full of practical information, and from them much may be learned. Honey plants are treated more completely than in any other work; diseases and enemies of bees, with what is known about them, have also proper attention.

Prof. Cook is the leading scientific authority on all that concerns bees in America, and, as most of our readers know, is a pleasant writer. Being Professor of Entomology at the State Agricultural College in Michigan, he has the opportunity of testing methods and appliances at the experimental apiary attached to the College, some of the vantages of this being apparent in the book before us. Unlike a recent author, who not only jealously witholds the names of many of the inventors or advocates of particular methods, but in many cases claims them as his own, thinking no doubt that he is the man, and that wisdom will perish with him, Prof. Cook is scrupulously particular in giving names. This is as it should be, and we think it shows a much more noble spirit to give glory unto whom it is due than to rob those entitled to it. Altogether the work is a great improvement on the former editions, and is one that no bee-keeper should be without. It is printed in clear type, on good paper, and contains 222 illustrations. The price is 6s., and Mr. Huckle is agent for its sale here.

Read at the Ninth Annual Session of the International Bee Associational.

The Importance of Experiments in Apiculture.

Mr. President, Ladies and Gentlemen:

The announcement just made by Prof. Cook, that he intends to commence the making of careful experiments on the four important points

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enumerated will give great delight to the devotees of our pursuit, because the promised experiments will cover the ground of not only the value of the different varieties of bees, but also the necessary pasturage to be provided, and the application of the most successful methods to be employed in the management of the apiary for profit.

We know but a very little of the arts and sciences—only just what has been found out *by experiments*, or by accident! We have seen only that which we had eyes to see; and the value of experiments—of training—of delving into the unknown—of studying the possibilities—lies in the opening of our intellectual eyes to see what there is in Nature all around our pathway! Was Stephenson a genius? Was Franklin brilliant? No; but both of them were full of observation, perseverance and intelligence, and these characteristics were dilligently aided by common sense.

It has been well remarked that if necessity was the *mother* of invention, surely an American was its *father!* Success lies in working with Nature, for it contains the secrets of all inventions. Here we may study, delve, guess, invent or copy to our heart's content. The human arm suggested the lever to Archimides. The human skull was well studied by Michael Angelo, who designed the dome of St Peters. The waves of the fury-lashed ocean led Napier to invent the shape of the "bow" of a steamship best suited to plow the waves and triumphantly ride over the tempest-tossed bosom. The latter let us more fully describe, that we may learn a valuable lesson therefrom.

The first steamships built in Scotland dared not to venture out of the firths and rivers in stormy weather. But David Napier, the celebrated marine engineer, thought that they could be so built that they could navigate the ocean in all kinds of weather, and accordingly he determined to know and personally observe the difficulties to be encountered and overcome.

Sailing packets were then running between Glasgow and Belfast, and he selected a stormy period of the year to make that voyage, in order to study the waves when driven with fury, for St. George's Sea is noted for its dangers, and the number of its shipwrecks. He stood for hours at the "bow" of the packet, watching the breaking of the waves—now and then leaving that chosen post to inquire of the captain if he considered the sea *rough*. When assured that so far it was nothing unusual, he returned to his post with disappointment.

The drenching spray he cared naught about, but the "ordinary weather" made him impatient. At last the wind increased—it blew a gale—and wave after wave "swept the packet from stem to stern." With this he was delighted, and dripping with salt water he made his way to the captain and asked, "Captain, do you think it is rough *now?*" who replied, "I never faced a worse sea, sir!"

Napier exclaimed, "Well; if that is all, I think I can master it!" He went below to meditate, and on his return to Glasgow, he began to *experiment*—just as Prof. Cook now promised us to do, but in another line. He aimed to discover the shape of the "bow" which would go through the water with the least resistance.

His observations, taken while being drenched with the waves at the "bow" of the packet, convinced him that the round bow of the sailing vessel was not calculated for a fast steamship.

Repeated *experiments* led him to believe that the fine wedge-shaped "bow" would revolutionize the world in the matter of steamship building. Then it often required several days to sail between Glasgow and Belfast! Now it requires but nine hours—all because of the experience and *experiments* of that undaunted marine engineer.

Now our modern "Napier," who has taken special pains to find out what necessity requires, will retire to his quiet haunts at the State Agricultural College, away up in Michigan, to meditate and *experiment* on the four important points which he enumerated a few minutes since! Let us hope that he will discover and bring to light matters

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and methods as important to progressive bee-culture as did Napier to ocean travelers, but a few years ago.

We all are aware that the survey precedes the building of the railroad, and the reconnaissance locates the field and line of battle. Just so is it with us at this time. Prof. Cook knows the difficulties to be encountered—he has "studied the waves of adversity" which have repeatedly dashed over our chosen pursuit, and caused much consternation. He has "surveyed the line" upon which it is to be hoped we can all ride to success; and located the plan of battle which may give us the victory. We shall anxiously await the result of his meditations.

BEE-PASTURAGE.

One of the cardinal points is that of providing pasturage for the bees. He proposes to plant ten acres of the Rocky Mountain bee-plant—to plant broadcast, and let it take care of and perpetuate itself. This matter of planting for honey has been a pet theory for years, with me, and I hail the day for an *experiment* on a large scale, feeling assured that it is one of "the winning cards."

Those depending on the wild pastures for bee-forage should not fail to plant for honey, and thus secure a good crop every season, as the years come and go. If *drouth* comes and finds them depending on streams which dry up, they are then the sufferers.

They should have pastures for the bees, with plants having deep roots to go and seek the moisture below, or else have pastures that can be watered from convenient wells or ponds, and thus aid Nature to secrete the nectar in the dry times.

Every season teaches some new and useful lesson. Those who heed these lessons are on the rise. Those who do not are on the down grade. Will apiarists be content to repeat each year the mistakes of the former one? If they are wise, No. If they are heedless and unprogressive, Yes.

HONEY ADULTERATION.

It has been asked here and elsewhere if extracted honey is now being adulterated? I answer, No. It will not pay to adulterate honey at its present very low price, and hence it is not practiced, for even the thieves and adulterators will not ply their nefarious business when it is unprofitable to do so.

As to the adulteration of comb honey, the truth about that is out at last. Wiley, Evans & Co., have been driven to the wall, in two ways; first by their having been forced to confess that there was nothing upon which they could build their "bogus comp-honey" story, except the wild imagination of a diseased brain; and the fun of perpetrating a very *un*-scientific pleasantry!

And, in the second place, immediate sale of the small crop of honey had made bare the great marts of trade, and while the demand was urgent, and the prices high, not a single pound of the bogus comb honey could be found! More than anything else, this shows the falsity of the claim, and exposes the *lie* about "comb being made of paraffine, filled with glucose, and sealed by machinery?"

Not a crate—not a section—not a pound—not a cell of the bogus "comb honey" can be found on the market! Not even the advanced prices can bring it to the front! If it was in existence, how the manufacturers of the bogus stuff would jump at the chance to sell it! How they would run the machinery night and day to fill the demand!

The citadel is stormed!
The giant is slain!
Comb honey is vindicated!
Prof. Wiley's lie is exposed!
The peddlers of the lies are rebuked!
The "prince of lies" is defeated!
The honey crop failure did it.

THOMAS G. NEWMAN.

Have you a few hours or a few day's spare time occasionally that you would like to turn into money? If so, then write quickly to B. F. Johnson & Co., of Richmond, Va., and they will give you information that will prove to be money in your pocket.

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Scientific * Department.

Read before the N. Y. State B. K. Association.

How Honey Bees Breathe.

Bees require a breathing apparatus, quite as well as ourselves, and I think it will astonish you when I tell you how complicated it is. In the first place bees, have no lungs like a horse or bird. They do not depend upon one organ to supply the oxygen necessary to enable the several parts to perform their functions. Before going further let me explain that the air we breathe is composed of three gases, one of which, oxygen, is the element that sustains *life*, as well as the fire which burns in the grate. Life may be called a burning process.

In ourselves, our blood comes in contact with oxygen within the lungs and then travels by the most delicate channels to every part of our body. In the bee there is a blood pump like our heart. It is called the "dorsal vessel," and resembles somewhat an injector such as is found on every locomotive, but depends on the opening and shutting of valves, for its successful operation. It leads the blood received, through the several openings in it, to the head, whence it oozes back through the whole body.

Instead of lungs, bees have what is called a tracheal system—a treachea is merely an air tube—and these air tubes travel in every conceivable direction within the body. They receive the outside air through openings in the body, called spiracles. Adult bees have fourteen of these openings. The spiracles open into large sacs, from which branch out the air tubes before spoken of. As I before said the blood does not receive the oxygen from lungs, and hence these air tubes must perform this life-giving function. Every part, every member, however small, however delicate, must be reached by these breathing tubes. Bees breathe with a regular motion, but instead of an expanding and contracting of the chest, it is a lengthening and shortening of the abdomen. Watch a tired bee stop at the entrance before going in, and you will see him pant away like a tired horse.

You know if a rubber tube is bent short it will "kink." To prevent this kinking in the suction hose of a fire engine, a spiral wire is run between the outside and inside coatings. Man may invent, but he will find often that his inventions are very old in God's patent office. Here in the bee we find tubes just like your engine suction-hose. Each trachea is formed of threads wound close together. When the bee twists and turns its body, how important it is that the air tubes shall not kink, hence the beautiful spiral construction. Could anything be more wonderful. In man the tracheal system is not so elaborate as I before said, and the blood in his case, performs the functions of the multitudinous minute air tubes which permeate or traverse every portion of the bee's anatomy.

Take a good sized pill box and fill it half full of wax. Catch a worker, and kill it with ether, chloroform or alcohol, and permit the killing fluid to evaporate. With a hair-pin, heated over a lamp, make a little bath of melted wax in a convenient spot in the pill box, and having clipped off the wings and legs of the bee, drop it on its back in the little bath aforesaid. The bee should not be more than half immersed in the wax, which is then allowed to cool. When cold, which will be in about a minute, pour water over the bee until it is covered. In a good light—say sunlight—with a needle knife (made by heating the point of a coarse sewing needle until red hot hammering it with a tack hammer, on the face of a flat iron, and after tempering by heating cherry red and plunging in water, sharpened on a hone, and inserted in a match, for a handle), and a fine needle inserted in another match, go to work and cut away the under part of the rings of the abdomen, and carefully lift them off. If you have good eyesight or if not, by aid of a cheap lense (magnifying glass) of good construction you will be astonished at the sight before you. There lie the honey sack, digesting stomach, bile tubes and intestine. Running in all

directions, but starting from the sides, you will note fine white tubes branching out into smaller, and these organs into still smaller, until lost to sight. These are the air tubes I have been talking about, and you will note that they not only encircle the digesting stomach, but are wound around the other parts in sight. If your lense be strong enough, and you have not ruptured it in your dissection, you may find the nerve system, which lies just under, or when the bee is right side up, just over the wax producing portion of the abdomen and which runs the whole length of the bee from tail to brain. You will find it composed of two "cords" almost transparent, with occasional bulgings in which the two "cords" are joined. In and about this very nerve system you will find the fine breathing tubes before spoken of. Up into the compound eye, with its thousands of lenses, run other breathing tubes, every lense being supplied with oxygen in this manner, so that its functions may be performed.

Cheshire tells us that some of the trachea, or breathing tubes, are so small that a quarter of a million bundled together would hardly be larger than a human hair!

Let me advise those who care a straw about such matters as I have spoken of, to buy what is known as the "Handy Dissecting Microscope," with three lenses, from Messrs. Bausch & Lomb, of Rochester, N. Y. I would advise the buying of one with rubber mounting like a pocket lense, as it can be shut up and placed in the vest pocket without danger of hurting the lense. The cost is $1.50 and a pair of nickel-plated pliers are furnisned with the instrument. These microscopes magnify from five to twenty-five diameters; that is, if a thing is 1-100 of an inch across, the highest power will make it look ¼ of an inch wide. Let me urge parents to get their sons interested in nature. Did you ever know a boy interested in insects and flowers to go to the bad? Never let him forget that, though the bee is included by such men as Tyndall under the head of machines, yet there is an Engineer running it whose knowledge is infinite and whose goodness is without limit. Let him remember that when he thinks he "knows it all" with the handy dissecting microscope, he will find he knows mighty little when he comes to look through a more powerful compound instrument. Let him remember that his mind is smaller in comparison to that of the Great Engineer than the smallest breathing tube of the honey bee to the whole universe. He will thus be taught to obtain his learning in meekness of spirit so necessary for successful beginning.

Fraternally yours,

JOHN ASPINWALL.

P. S.—Let me say how sorry I am that circumstances prevent my being with you this year. May your meeting be a success, and may the coming season be another.

[We desire to add, for the benefit of those scientifically inclined, that the blood of the bee contains but few corpuscles, and these are white. The fluid in which they are suspended, we suppose, corresponds to the *plasma* of the human blood, and performs the same office, so far as it goes. As we understand the matter, the minute blood vessels of the human body perform the functions which in the bee are assigned to the minute tracheæ, penetrating every organ, even the wings.—ED.]

The Sting and its Poison.

[The following essay was to have been read by Mr. Grimshaw at the last quarterly conversation of the British Bee-Keepers Association. It was afterwards published in the British Bee Journal as below.—ED. B. K. M.]

Some three years ago I had the pleasure of reading you a paper on the "Identity of the Bee's Sting with the Ovipositor of other Insects;" and at this time, without desiring to refer at too great length to the opinions I then expressed, I may recall to your minds that I considered the sting of the

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worker-bee a modified or aborted ovipositor, utilized by the insect as an offensive and defensive weapon (the only one at its command), exactly in the way as other insects have been known to use *their* ovipositors, depositing in the wound a quantity of corrosive poisonous fluid, similar in its toxical properties to that pumped under the skin by the bee.

When we expect the perfect use of the different parts of any animal, we presuppose that we have a perfect one to deal with; and as we know the worker-bee to be an imperfect example (inasmuch as its reproductive organs are aborted and undeveloped), is it an unfair assumption that the anatomical structure of the sting, being so identical, mechanically, with ovipositing organs of other insects, its use of this organ as a sting is, on the face of it, faulty and imperfect, especially when we observe the astounding fact that such a use of it ends in death, tearing from its fixing and base, in a rude repulsive way, part of the abdomen and its contents? This always seems to us a cruel and somewhat unnatural arrangement. Depend upon it that when we find an untimely death resulting from the exercise of such a natural impulse as self-defence, there is outrage on, or interference with, Nature's law; and an inquiry into such an abnormal state of things may assist us in finding the true uses of the parts under consideration. If the ostrich by using its two claws, the deer its antlers, the bull its horns, lost their lives as a necessary sequel of a defensive effort by a coarse rending away of these very weapons, we might, I think, very properly come to the conclusion that they were intended originally for some other use; in the case of the reindeer, for instance, the horns are modified in form to plough up the snow in a food search, or to clear away for the herd through the bush, as in the case of many other deer.

I know you may quote against my assumption the fatal effect on the drone of a somewhat similar rending of its structure, but the analogy scarcely holds good, for with him we are dealing with an admittedly *perfect* insect perishing after having successfully played its part in the world, illustrated many times in both vegetable and animal kingdoms, whereas with the worker we are dealing with an *im*perfect one—imperfect because of its inability to take part in reproducing its kind, however well it may indirectly aid others in so doing, just as the worker is a necessary help in reproduction, by nectar and pollen-gathering, brood-rearing, cell-building, and so on, yet after all she is only an adjunct.

We find the queen humble-bee performing all these labors herself until she has a family of workers round her as deputies, still they are only reliefs, lady-helps.

We must, I think, consider the sting of the queen, with its curved form and barbs differing so much from those on the worker's sting as a true ovipositor, *the* perfect instrument in the perfect bee, exactly corresponding (as it does) to the saw-like ovipositor of other hymenoptera; we must put it in opposition to the imperfect instrument either faultily used by the worker for another purpose than that originally intended, or in process of adaptation or modification. We find the ovipositor of the queen curved towards the under part of the abdomen, the barbs fewer in number, and not so sharp and formidable as those on the worker's sting; the ovipositor (or sting) may thus be withdrawn when used in queen-fights. Here, again, is another bit of evidence against considering the instrument as a sting:—The queen not using it when attacked by workers or any enemies such as ourselves when we handle or even injure her.

One cannot think, then, of the queen and worker being provided with such a complex and beautiful piece of mechanism, attached to which are the highly sensitive palpi; the toothed sheath, the marvellous rods and slides, the barbs and poison apertures, the poison-bag, with its valves and admirable pumping arrangements, the oil-glands providing a lubricant which prevents the poison from clogging the darts, and (mark this) thus enabling them to be brought into use again and again at the need of

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the insect, the delicate poison-glands secreting the wonderful preparation from the blood and storing it in such an intricate reservoir,—I say we cannot think of all this work remaining dormant and useless in the queen, excepting on the occasion of a few fights spread over a few years, or in the case of the worker existing only as a standing menace of death if brought into play, especially when we remember that for every one bee using its sting as a sting in its wild or natural state, very many thousands die without ever so using it. It is not, I hope, blasphemy to say the Creator does not waste His work in any such way.

We must look around for as regular a use of this whole apparatus, as we find when we regard the tongue or the pollen-clearing and collecting contrivances. We cannot attend the queen in her movements on the cell-base during egg-laying, but we may clumsily try to imitate her. In this effort I take apiece of foundation; and make a scratch with a needle. I next apply strong sulphuric acid, the same diluted, and poison from a bee's sting, two different parts of it, and I find the joint action of the wax and acid produce a stickiness of the surface, to which my little bits of white thread (resembling bees' eggs) adhere, and remain fixed by their ends quite as firmly as if placed there by the queen herself, though the implement of the queen is much in advance of mine, inasmuch as she can apply the corrosive fluid at the time of making the scratch by slightly bending the abdomen forward, or with her curved ovipositor she can use the side barbs as the saw-fly uses its saws, depositing in the groove her poison just as the saw-fly does. This discovery filled me with delight, for I could by analogy now see the use for what had hitherto seemed almost useless organs in the mother bee. I could also dispense with the generally received notion that the egg is provided with an adhesive secretion on its extrusion (but by what glands secreted we are not told). The necessity for the extremely sensitive palpi of the sting, so as to enable the bee to feel about on the ridges formed by the lozenges of the cell-base for a suitable spot on which the egg may be placed, thus becomes evident. Let the queen use her sting and poison in a contest with an opponent if you like, but we can no more call that its true office than we can say the true use of the hind-legs of a horse is as a means of attack and defence. Well, as the horse uses its heels, the worker-bee uses its sting, its old ovipositor, for which it has no use other than those it can adopt it to. My idea that the sting is used by the queen as a groove-former, and the poison spread on wax as an adhesive compound, to which the egg is attached on being laid, is somewhat borne out by the experiment of Mr. C. N. Abbott. This well-known practically scientific bee-keeper found that when he gave wooden-based foundation, the queen refused to lay in cells.

If we now experiment with bee-poison, we find we can use it as a capital varnish and mixing medium, a varnish at once antiseptic and complete, so that the cell may not after all be polished and varnished with the orthodox mixture of propolis any more than we ourselves need polish timber, fetching and carrying the materials when we have a varnish ready made. The worker's sting, then, may be a tool used for macerating wax by the aid of the secretions upon it, a moistening gum-like secretion being all the while pumped out through the openings in the rear of the barbs by each muscular movement of the darts, the palpi of the sting being used as a brush or spreader of the acid secretion—our bees, perhaps, diligently working when we have been crediting them with the idleness of wax-secretion.

Dr. A. VonPlanta (*B. B. Journal*, p. 410) throws some light on the value of bee-poison as a preventive of fermentation when mixed with honey: on this subject I have nothing to add to my remarks made in a recent paper on the medicinal properties of honey. It is generally understood that the *active* principle of the bees' sting is formic acid, and that a hypodromic injection of this acid is poisonous to the bee and

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other animals; this is not the case, the result of this act is only a local irritation and inflammation. Now formic acid corresponds to methylic alcohol, just as acetic acid corresponds to ethylic alcohol (wood spirit or spirits of wine;) these are the two simplest acids, and are most nearly related. Acetic acid (dil) is prescribed as a subcutaneous injection for cancer, so there cannot, after all, be much danger from formic alone: indeed I have experimented on myself with it and find little harm in it. This acid alone produces upon wax, on the skin, or in the blood —(1) effects quite different from those made by bee-poison; (2) it is very volatile, giving off an odor much resembling that from acetic acid, not leaving a crystalized or gummy residue as does bee-poison; (3) its color is different; (4) it is not poisonous; (5) it does not mix with, soften, or varnish wax, as in the case with bee-poison. Now, although the bee requires formic acid it does not gather either it or the oxalic acid from which it may be derived, it is a secretion of its body from (in all probability) some other more complex acid which it may gather (I refer to uric acid, from the very mention of which some hypersensitive natures seem to recoil.) From this acid oxidising agents may give the bee compounds containing oxalic (or, oxalic may be secreted from nectar, honey, or other carbon compounds acted upon by nitrogenous substances.) For the matter of that, the decomposition of the liquids said to be much sought after by bees will give them their formic acid: I prefer, however, to lean to the pleasanter formula:—the oxidation of hydro-carbons into the simplest of the fatty acids, say for instance, a hydro-carbon $C H_4$ is oxidised into $C H_4 O$, again into $C H_2 O$, and, finally, into $C H_2 O^2$, the formula of formic acid (at least this is a process of the labratory,) how much more simple or intricate in the alembic of the bee we may never know—the conversion of floral perfume into what we find it—we know this, however, it is secreted copiously and used plentifully in various ways, least of all as a venom or poison. I have come to the conclusion that the truly toxical (or poisonous) principle of the bee-sting is an animal alkaloid, a virulent poison secreted in its body from the volatile and essential oils found in nectar,* that this alkaloid is collected by glands and stored in the poison-sac mixed with a gummy, non-saccharine substance, and heavily diluted with formic acid. What is this gummy substance, this residue left by a dried-up drop of poison? Taking the temperature of the bees' body at something near our own (90° being required in the hive for wax-secretion) I find Canada balsam and formic acid soon give us a suitable gum; fir-wool oil, terepine, and preparations of turpentine do this also, but in my experiments with formic acid and sugars I fail altogether. Now, if the bees gather turpentine (a resinous substance exuding from trees of the pine tribe, which we call propolis,) oxidation of a small quantity of this taken into its system converts it into various acids, or, having undergone a slight change, it may be stored in the poison-bag for use in wax softening; thus giving our bee its furniture-polish, varnish-pot, and gum-pot, in one. We are often told about bees mixing propolis and wax together, doing this, that, and the other, but we are not told whether the tools are at the tail or the head of the insect; neither have we been informed where the flux or mixing medicine is found. I think we know now. Triturating wax with formic acid produces no perceptible result so far as softening it is concerned, but, on the other hand, treating wax with an alkaline gives us a soft, plastic mass, which, in turn, by the addition of a little acid becomes a similar froth-like substance, such as we find in the bees' first process of preparing wax-scales for cell-building.

* It has recently been proved that alkaloids are the products of organic decomposition, that they can be artificially induced by the decomposition of vegetable matter, that alkaloids of the most toxic kinds exist even in the human economy during life, existing in the kidneys, viscera, muscles and brain matter, in the sweat, blood, and saliva, and interesting study may then be made of diseased conditions of the body ending fatally from a bees' sting. —*Life Lore*, p. 60.

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While agreeing with Mr. Cheshire that the offices of Nos. 2 and 4 glands are of a digestive nature, secreting brood-food from honey and pollen, I am inclined to the belief that the system No. 1 (or No. 3) gives an alkaline salivary secretion, converting cane into grape sugar, and dissolving gluten, oil, etc., while starch-granules may be converted into dextrine by dilute acids secreted by the glands of the other system—ferments and yeast.

I may, however, remark, transform cane sugar into dextrose (glucose or grape sugar,) and into levulose or fruit sugar; such a ferment is Mycoderma aceti. Pollen, the nitrogenous flesh-former of bees, requires a different digestive secretion than necessary to convert nectar into grape sugar, but until it be changed it cannot, of course, be assimilated by the bee. If we ourselves have two distinct digestive secretions—the alkaline of the mouth and the gastric of the stomach—we are not going beyond the bounds of reason in ascribing a similar arrangement to the bee's salivary secreting organs nor in attributing to the sting, the barbs, the palpi, and the poison other and truer uses than those usually attributed to them in the grand scheme of economy, the great and glorious Harmony of Nature.

Hard Luck—Questions Regarding Size of Bees, Etc.

Editor of the Bee-Keepers' Magazine:

Enclosed find fifty cents for MAGAZINE for another year including this month, October. You ask how we are getting along. Well, if two years of entire failure ought not to knock out a beginner who has read, in what he supposed was honest bee books and magazines, how men have made $200 and $300 out of a half a dozen sceps of bees in one season, then I don't know anything, besides having a big scare about foul brood. In short, I went into winter quarters with sixteen came out with eleven, had six swarms and three from dividing, and now will go in with twenty, some of which I am feeding, so as to give them enough for winter. My surplus honey was about twenty pounds, and I expended $25. In regard to foul brood the matter is a little strange, there was none here known, but last spring a year, a party who had a few bees, sent to your State for a queen, put her into a strange swarm, and by fall all were dead. I had one swarm separated from the rest of my bees, a good strong swarm, and on 4th of July divided them, and the brood then in, never came out, and by fall both were dead. This spring a neighbor found his three swarms were diseased and he destroyed them. His father lost four of his; the gentleman from whom I bought my stock (living in town) lost his entire apiary. I hived a swarm in the hive in which I lost one of mine without cleansing it, and have a good swarm now, without sign of disease.

I had the luck to get an unimpregnated queen for a tested one from a neighboring apiary, where they made a specialty of raising queens and furnishing supplies, and before I knew it, I had a hive full of drones and very few workers left, but remedied it by changing the queen and getting a swarm from the woods which I put with the remainder. I intend to pack my bees on summer stands and try it again, give us in your next the style of hive you like best, that is not simply saying 2000 cubic inches, but highth, width, and length. Also I would like to know how many frames it is necessary for a strong swarm to breed on during the summer or honey season. Supposing I wish to use an extractor, how would I arrange my frames, or if I wished to put surplus boxes in brood chamber, how many of the ten racks must I leave in to breed on, etc? I read these things in your book but not as plain as I like them. I have two sized hives. My old bees are in simply square boxes 18x12x12, eight frames, with surplus boxes to set on top, holding one tier of one pound sections. I am changing them to hives 18x10½ high 14½ wide, ten frames, which is the most profitable? Hoping we may

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all get enough honey to eat next year,

I am Respectfully yours,
W. D. MELICK.

[We like a frame 10 inches high and 15 inches wide. In summer use 8 to 10 such frames in the brood nest. For extracting use two stories, placing the empty frames below. If you put on boxes for comb honey, either place them in a rack over, say 5 or 6 brood frames, or else on the sides, in box-holders, or in wide frames.

We should think the 18x10½x14½ to be the best form. We echo your hopes for next year.—ED.]

From Farm and Home.

Keep the Bees Warm.

C. T. SWEET.

Bee-keepers who build their own hives will find the one I make possessed of many advantages. One is that it takes the Adair frame, which is much better for wintering bees than those more shallow. The frames are shorter (without being smaller) than the Langstroth, which puts a light swarm in better shape. It is also adapted to side storing, as it takes ten brood and two wide frames. It will accommodate two fair colonies, one entering from each side, and it can be made into a chaff hive by simply filling the porticos and tacking in two bits of board to hold the chaff in place. These partitions for chaff must not come quite to the floor of the hive entrance, so the bees can pass in and out without being hindered. Don't be afraid of keeping bees too warm, for the few bees it takes to ventilate a hive when too warm are of small moment compared with having them nearly all die in the spring before they can rear any brood, or to having the whole colony stop comb-building every cool night through the summer. With the ground below and chaff above and all around them, bees could not be better off in the thick walls of a great forest tree. Above all things keep the bees warm. In winter spread the combs a little and make winter passages where the cluster will be.

For the ends of the hive take two boards 11⅝x24 inches. The front and rear are 10⅛x18½ and are set between the ends exactly 14¼ inches apart and three-eighths of an inch higher so as to leave an entrance for the bees. The bottom is half-inch stuff and is nailed to the ends. Set the covers of the porticos (of seven-eighths inch stuff) into the end boards just 7½ inches above their centers and give them an inch drop. This will leave three-eighths of an inch for the tin rabbet, which may be bent and tacked to the portico cover or simply tacked to the inside of the front and rear and allowed to extend above half an inch. Tack a one-fourth inch bead all around the top edge of the hive and thoroughly paint it to exclude rain. Inside of the bead it will be 15x19¼. The cover is made of half-inch stuff, except the center of the top, which is seven-eighths. The upper sides are five inches high, so it will take a thick chaff cushion in winter and a tier of No. 1 sections in summer. The lower edge must be rabbeted so as to fit over the bead on the body of the hive, and the corners should be bound with metal. With a coat of lead and oil each season, this hive should last a lifetime. There is, in fact, no place it can spread apart or give out.

Garret County, Md.

Good Pasturage for Bees.

R. S. RUSSELL.

Who has handled bees and made them his associates who will doubt for a moment that these industrious little misers will appreciate any improvement in their home and plantation and doubly repay any judicious outlay toward supplying them suitable plants from which to extract honey? I believe a bee is not happy except when employed gathering the sweets that nature stores in certain plants. Lay the foundation for an abundant honey harvest. If you have no bee willow near your apiary, procure a few roots

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or cuttings and plant in low land. This will bring the earliest pollen, which is the most useful. The bark will crack late in the fall and furnish a harvest of honey after frost has killed all flowers. Also plant a few soft and hard maples and tap lightly in two or three places early in the spring. These trees should be near the house, as many bees are chilled and lost in rambling for early sweets.

Be sure and spare all the bass wood on your farm and plant a few more in old pastures for shade. Plant catnip, the more the better, near the apiary. This is fine for young bees. Spare all the golden rod, when mowing the fence corners, also all asters. The bees will tell you what they are when in bloom if you do not recognize your friends. Sow a patch of buckwheat. Last, but not least, procure a supply of Simpson's honey plant seed from some reliable apiarist or seedsman. It can be sown in hot-beds and transplanted the same as cabbage; or sow in open ground. It will grow anywhere, in fence corners or waste ground, in shade or in cultivated fields if planted 2½ feet apart.

The honey plant can be sown in the woods pasture and is a certain grower, whether cultivated or not. This is by far the best honey plant of all, giving a steady flow of good honey from the middle of July until killed by frost. The honey accummulates in the cup-shaped flowers, and if all removed will almost immediately fill up again, thus affording an inexhaustible supply faster than the busy workers can remove and store it. I have noticed no disease in my apiary since I have raised this plant. * * It is not a noxious weed, but is easily exterminated.

Brother apiarist, I can imagine no lovelier stroll than through my woods in August and September. The honey plants are in full bloom and the beautiful Italians make the woods musical from daylight until dark. I will not speak of the merits of the different varieties of clover, as they will of necessity be sown and help to round out a full season for the most industrious of God's creatures.—*Ex.*

Our Clubbing List.

We offer the following unusual Clubbing List. We consider them *first-class* periodicals, and we cannot too highly recommend them:

	Regular Price.	Price with MAGAZINE.
The Farmers' Magazine,	$ .50	$ .85
The Poultry Keeper,	.50	.85
The Practical Farmer,	2.00	1.75
Agricultural,	1.00	1.25
Prairie Farmer,	1.50	1.65
American Agriculturist,	1.50	1 65
Scientific American,	3.00	3.05
Century Magazine,	4.00	4.00
The Independent,	3.00	3.00
American Horticulturist	1.00	1.25
National Journal of Carp Culture,	.50	.80
Orchard and Garden,	.50	.85
Tuttle's Photograph called "Medley of 120 Prominent Bee-Keepers,"	1.00	1.25
The Poultry Monthly (new subscribers)	1.25	1.45
The Western Rural	1.50	1.75
Harpers' Monthly	4.00	3.75
" Weekly	4.00	3.90
" Bazar	4 00	3.90
" Young People	2 00	2.25
St. Nicholas		3.25
Photographic Times (weekly)	3.00	2.85
Photographic Times (monthly)	2.00	2.00
Planter's Guide, without premium	50	75

A man who has practiced medicine for 40 years, ought to know salt from sugar; read what he says:

TOLEDO, O., Jan. 10, 1887.

Messrs. F. J. Cheney & Co.—Gentlemen:—I have been in the general practice of medicine for most 40 years, and would say that in all my practice and experience, have never seen a preparation that I could prescribe with as much confidence of success as I can Hall's Catarrh Cure, manufactured by you. Have prescribed it a great many times and its effect is wonderful, and would say in conclusion that I have yet to find a case of Catarrh that it would not cure, if they would take it according to directions.

Yours Truly.
L. L. GORSUCH, M. D.
Office, 215 Summit St.

We will give $100 for any case of Catarrh that can not be cured with Hall's Catarrh Cure. Taken internally.

F. J. CHENEY & Co., Props, Toledo, O.

Sold by Druggists, 75c.

Meeting of Eastern New York Association at Albany, Jan. 16 and 17, 1889.

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THE HONEY MARKET.

NEW YORK.

We are most closed out of old stock, and have not named price on new goods at this time of year, the market is not settled. When new stock comes in will give you quotations.

THURBER, WHYLAND & CO.

Aug. 22, '88.

CHICAGO.

Our honey market is quite active and best grades of white comb brings 18 cts., and goes off quickly. Sections weighing over one pound sell at 16 to 17 cents. Extracted, 7 to 9 cts. Our supply is light and the receipts do not increase. R. A. BURNET,

161 S. Water St., Chicago.

Sept. 1, '88.

CINCINNATI, OHIO.

Demand good for extracted honey, which brings 5 to 8c. on arrival, according to quality. Prices of comb honey are nominal and demand very slow. We are asking 12 to 15c. in the jobbing way. There is a good demand for beeswax which brings 20 to 22c. per lb. for good to best yellow on arrival.

CHAS. F. MUTH & SON.

July 17, '88.

New Bee-Keepers' Text Book—New Edition Just Out.

We have felt called upon to make but few alterations in the new edition as we considered it well up with the times, and by all odds the cheapest, comprehensive work on bee-keeping in the market. It is no advertising scheme, but it is just what its name implies, a *true Text Book*, one to which the apiarist may turn for sound advice at all times, with the felling that somebody's wares are not being pushed under his nose. Mr. Frank A. Eaton, of Bluffton, Ohio, a queen raiser of experience, writes as follows, regarding it :

I have carefully perused the contents of Bee-Keepers' Text Book, and find find it *jam full* of value. My criticism as to its size was simply the first glance or impression as compared with other bee books, but I but I find it contains more value than many others.

It is well to remember that Mr. Eaton ot first condemned the book owing to its size, as it is made to fit into the pocket of an ordinary sack coat, but we wrote him to read it and then report, which he did as above. What stranger testimony could there be of its true value. We could write a book as big as a dictionary without giving more solid facts than are contained in the Text Book. What bee-keepers need is *wheat* not *chaff*.

Rev. E. S. Grover, an experienced apiarist, bought a copy a copy and wrote us the following unsolicited testimonial.

PIEDMOND, S C., Feb. 14, 1888.

SIR—I have recelved the "Bee-Keepers' Text Book" and am well pleased with it. Indeed it is a real Text Book. It ought to be in possession of all who are learners. I prize it highly. Many thanks.

Yours truly,

E. S GROVER.

Cloth and Gilt, $1.00. Paper, 75c. Postpaid. Address Bee- Keepers' Magazine.

EXCHANGE DEPARTMENT.

Exchanges not to exceed 6 lines, inserted free.

WANTED TO EXCHANGE.—Bee supplies for Japanese Buckwheat. H. D. Davis, Bradford, Vt.

WILL exchange for best offers, or cash. "Youth's Companion." Vols. 57, 58, (home bound) 59. "Farm and Fireside," vol. 9. "Farmer's Magazine," vol. 7. "Poultry Keeper," vol. 2. "Farm and Home." vols. 6, 7, (home bound) 8, 9. "A. B. C. in Carp Culture." 1 year's "Api," vols. 5 and 6. No. 1 steel traps. 1 double barreled shot gun. 1 silver reed accordeon. 1 violin and case. 3 duck decoys, (new). Address Geo. W. Hamilton, Sweet Home Apiary, No. Syracuse, N. Y.

A FULL line of Bee-Keepers' Supplies to exchange for extracted honey. Address at once for price list. C. H. Smith, Pittsfield, Mass. Box 1087.

WILL exchange for extracted honey, or offers Simplicity Hive with two frame nuclei with one of my golden Italian queens, for $2.50 each. Mrs. Oliver Cole, Thesburne, Chenango Co., N. Y.

WANTED TO EXCHANGE.—1 vol. *Youth's Companion*, 1884, 1 vol. *Pansy*, 1883, 32 Nos. *Library Magazine*, and 7 Nos. *Phonographic Magazine*, for one setting (12) Pea Fowl eggs. Write first. BURR FARM, Angelica, Alleganey Co., N. Y.

I would like to exchange 1 vol. of *The Little Farmer*, 11 months of the *Canadian Bee Journal*, '87 8, and 1¼ vols. of the *American Rural Home*, for 1886–7, all in good order and home bound, for Newman's *Bees and Honey* or Cook's *Manual*. Write first. W. Matthews Barnum, Angelica, N. Y.

WILL exchange eggs from high soaring, rose comb, brown Leghorns, for tested Italian queens, thin or thick foundation, boxes or offers. Address Geo. L. Ferris, Prairie Farm, Five corners, N.Y.

WILL Exchange first-class Homing Pigeons, stock represents some of the best lofts in the country, for a colony of Italian Bees or a 22 calibre Ballard or Stevens Rifle. Address Jos. A. Eibel, Lancaster, Pa.

I WILL exchange 100 White Star Queens and introducing cages for two lbs. of Bees with untested queen. A sample cage will be sent for 5 cts. in stamps. D. C. Buck, box 276, Dundee Mich.

NOTICE.—I have one of the finest flocks of Laced Wyandotte's, White Leghorn's, S. S. Hamburg's fowls to be found in New York State, and will exchange pairs or trios of same for comb feed. Sections cash or offers. Send sample. State number wanted. Address Leslie Stewart, Jefferson, Schoharie County, N. Y.

BEE-KEEPERS' GUIDE.

Every farmer and bee-keeper should have it, 15th, 1,000 just out. Wholly revised and much enlarged. It is both practical and scientific, and contains the very latest. Address

A. J. Cook, Agricultural College, Mich.

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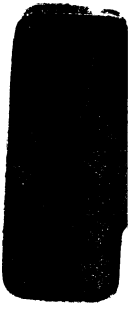

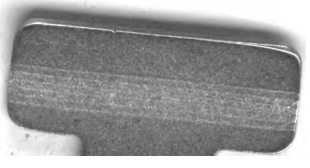

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